

**FINDING OF NO SIGNIFICANT IMPACT**  
**ENVIRONMENTAL ASSESSMENT**  
**CONSTRUCTION OF HANGAR ADDITION TO BUILDING 820**  
**TINKER AIR FORCE BASE, OKLAHOMA**

**AGENCY:** 72nd Air Base Wing (ABW), Tinker Air Force Base (AFB), Oklahoma.

**BACKGROUND:** The 72<sup>nd</sup> ABW has prepared an Environmental Assessment (EA) to address the construction of a Type II aircraft maintenance hangar addition to Building 820 at Tinker AFB. This EA has been accomplished pursuant to the National Environmental Policy Act (NEPA), the Council on Environmental Quality (CEQ) regulations implementing the NEPA, Department of Defense (DoD) Directive 6050.1, Environmental Effects in the United States of DoD Actions, Air Force Instruction (AFI) 32-7061, The Environmental Impact Analysis Process, and 32 Code of Federal Regulations (CFR) Part 989 Environmental Impact Analysis Process.

**PROPOSED ACTION:** The Proposed Action includes the construction of a Type II aircraft maintenance bay hangar, and associated aircraft access and parking aprons. The proposed single bay hangar will be constructed as an addition to and located at the west end of existing hangars at Building 820. The high bay hangar will be designed for fuel cell maintenance operations and also provide maintenance, crew and equipment, and other support space in support of the 60 aircraft maintenance personnel of the TACAMO E-6B aircraft squadron.

Fire lane access for emergency vehicles will be provided and the existing security fencing west of Building 820 will be relocated as needed to support the project. Implementation of the Proposed Action will require construction of an emergency vehicle access route around the west side of the hangar addition. The Proposed Action will also include the relocation of functions contained within Building 815 (Shed/Frequency Control) and Building 816 (Avionics) which are located within the footprint of the Proposed Action. These structures along with pavement located west of Hangar 820 will be demolished prior to implementation of the Proposed Action. The project will incorporate the relocated functions and personnel into the maintenance hangar addition. Temporary trailer facility space for both will be provided while the hangar is under construction. The project may also require the relocation of existing Milstar/Satellite Communications equipment and an aboveground fuel tank located on the west side of Building 820.

**SUMMARY OF FINDINGS FOR PROPOSED ACTION:**

Noise: No significant adverse noise impacts will result from implementing the Proposed Action, though some negligible to minor short-term localized adverse impacts from demolition and construction activities will be expected. Noise levels from demolition and construction activities will however be insignificant compared to daily airfield operations. In addition, and the effects of construction noise will be reduced by employing BMPs such as limiting construction activities to normal working hours and employing noise-controlled construction equipment during daily

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activities. Negligible adverse long-term noise effects resulting from the Proposed Action will not significantly impact sensitive receptors on, or adjacent to Tinker AFB.

Land Use: No significant adverse effects on land use will be expected as a result of the implementation of the Proposed Action. In addition, the Proposed Action will be compatible with existing land uses and in accordance with land use plans for the installation and surrounding areas.

Air Quality: There will be a short-term increase in air emissions associated with demolition, construction and paving activities. Short-term air quality impacts will be controlled and minimized to the extent practicable through implementation of BMPs such as construction sequencing, routine watering of the construction site to control dust, use of dust suppressants, and minimizing the amount of time that ground is disturbed. New sources of air emissions as a result of operations of the Proposed Action are expected to include the installation of one boiler/heat converter unit, the use of an onsite diesel-powered fire pump, and fugitive emissions associated with fuel-cell maintenance activities. Long-term emissions at Tinker AFB will however likely remain relatively unchanged due to the integration of many separate maintenance functions into the single bay facility from activities currently performed in other areas of Building 820. In addition, the Proposed Action will occur in an area that is currently classified as "attainment" for National Ambient Air Quality Standards, will therefore not be subject to a conformity analysis, and will not expose the public or operational personnel to hazardous levels of air emissions.

Water Resources: There will be a slight increase in impervious cover at the proposed TACAMO hangar facility associated with demolition and construction activities resulting in increased runoff volumes. There will be a short-term potential for adverse impacts to surface water quality during the initial demolition and construction activities. Potential impacts will be minimized and controlled through implementation of a Storm Water Pollution Prevention Plan (SWP3) along with the incorporation of BMPs for sediment control during construction. There will be no impacts to the quality or quantity of groundwater, wetlands or floodplains at Tinker AFB or the surrounding area.

Earth Resources: The majority of soils in the vicinity of the Proposed Action have been previously disturbed and the project is located in an improved area which includes existing facilities and paved parking apron and storage areas. There will be short-term, minor soil disturbance as a result of the proposed demolition and construction activities. These activities will be mitigated through implementation of proper BMPs during construction.

It is also possible that contaminated soils not previously identified could be encountered during construction. If contact is made with such contaminated soils, care will be taken to ensure that human health is protected from the potentially contaminated soil through the implementation of appropriate BMPs.

Hazardous Materials and Wastes: There could be negligible to minor adverse impacts for the long-term management of hazardous materials and hazardous waste streams within the TACAMO hangar facility; however, the management and control of all hazardous materials will



adhere to existing TACAMO Hazardous Minimization Center, Tinker AFB, and state and federal policies, procedures and regulations.

The Proposed Action will be constructed within one-half mile of known Environmental Restoration Program sites or Areas of Concern, but it is unlikely that demolition or construction activities will encounter contaminated soil or groundwater.

Occupational Safety and Health: There could be short-term, minor adverse effects to safety due to temporary demolition and construction activities. Construction contractors will be required to establish and maintain safety programs that will provide protection to their workers and limit the exposure of base personnel to construction hazards. Proper safety precautions will be put in place in the event contaminated groundwater or other contaminated materials are encountered during construction activities.

Consolidating aircraft maintenance operations from other maintenance hangar bays and flight line areas to a dedicated fuel cell maintenance hangar will be expected to result in long-term positive impacts to health and safety.

Sustainability: In accordance with Executive Order 13123, *Sustainable Building Design* and other Executive Orders and laws, the Proposed Action incorporates sustainable features into the design, construction, and operation of the proposed hangar facility; therefore, positive impacts to long-term sustainability objectives will result. The Proposed Action will be designed and constructed to receive a minimum LEED Gold-level rating certified by the U.S. Green Building Council.

Infrastructure, Utilities and Energy Systems: During construction, there will be a minor, short-term increase in potable water consumption due to dust suppression, minor increases in solid waste associated with demolition and construction activities. Short-term adverse impacts to transportation and parking near TACAMO will also result as construction vehicles accessing the site use the same access routes as personnel working at the site causing minor delays, especially along Mercury Road.

There will be negligible long-term increases to domestic and industrial wastewater generation and solid waste generation as a result of the Proposed Action. There will be minor, long-term adverse impacts to parking as some vehicle parking spaces will be removed from the TACAMO parking lot. There will be no impacts to installation electrical power systems or natural gas distribution systems as a result of implementation of the Proposed Action.

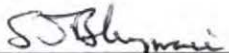
**SUMMARY OF FINDINGS FOR NO-ACTION ALTERNATIVE:** The conditions and characteristics anticipated under the No-Action Alternative for each resource area will continue at levels equal to those occurring under the existing condition. No significant environmental impacts will be expected for the No-Action Alternative. However, reduced hangar availability at TACAMO facilities will continue to force some maintenance activities to be performed in outdoor flight line areas in sub-standard conditions. Therefore, increased safety hazards resulting from maintenance personnel being exposed to outdoor elements will continue to exist.



**SUMMARY OF CUMULATIVE IMPACTS:** The cumulative impact of implementing this action along with other past, present, and future projects in the Region of Influence were assessed in the attached EA and no significant cumulative impacts were identified.

**SUMMARY OF PUBLIC COMMENTS:** No public comments were received during the public comment period.

**DECISION:** Based upon my review of the EA attached and incorporated by reference, and contingent upon implementation of specific mitigation measures to be implemented by the 72<sup>nd</sup> ABW, I conclude that none of the alternatives, nor the Proposed Action will have a significant direct, indirect, or cumulative impact upon the environment. Accordingly, the requirements of the National Environmental Policy Act, regulations promulgated by the President's Council on Environmental Quality, and 32 CFR Part 989 are fulfilled and an Environmental Impact Statement is not required at this time.

  
\_\_\_\_\_  
STEVEN J. BLEYMAIER,  
Colonel, USAF  
Commander

Date 6 Mar 12

## COVER SHEET

**Responsible Agency:** 72nd Air Base Wing, Tinker Air Force Base (AFB), Oklahoma

**Proposed Action:** The United States Air Force (USAF) proposes to construct a Type II aircraft maintenance hangar addition to Building 820 at Tinker AFB. The single high bay hangar would provide maintenance crew and equipment and other support space for 60 personnel and be designed for fuel cell maintenance operations. The Proposed Action also includes construction of associated aircraft access and parking aprons, and the demolition of the existing concrete parking apron located west of Building 820, a 500-square foot (SF) Shed/Frequency Control facility (Building 815) and a 300 SF Avionics facility (Building 816). The functions of the frequency control and avionics facilities would be incorporated into the maintenance hangar addition. Temporary trailer facility space for these functions would be provided during the hangar addition construction.

**Point of Contact:** Cynthia Garrett, 72 ABW/CEAN, 7701 Arnold Street, Tinker AFB, OK 73145-9100

**Report Designation:** Environmental Assessment (EA)

**Abstract:** To support mission requirements of the U.S. Navy's Strategic Communications Wing 1 (SCW-1), the USAF and SCW-1 propose to provide the necessary aircraft maintenance facilities to support aircraft and fuel cell maintenance operations, maintenance crew and equipment space, administrative space, and avionics and maintenance. This Environmental Assessment (EA) analyzes and documents environmental effects associated with the U.S. Air Force's Proposed Actions at Tinker AFB, Oklahoma.

The following resources were identified for study in this EA: Noise, Installation Compatible Use Zone/Land Use, Air Quality, Earth Resources, Water Resources, Hazardous Materials and Hazardous Wastes, Occupational Health and Safety, Infrastructure, Utilities and Energy Systems, and Sustainability Objectives and Targets.

None of the predicted effects of the Proposed Action would result in significant impacts to the quality of the human or affected environment at Tinker AFB and surrounding areas. Moreover, mitigation would not be necessary to offset impacts. Therefore, preparation of an Environmental Impact Statement is not required and a Finding of No Significant Impact (FONSI) will be published in accordance with the National Environmental Policy Act.



#### **PRIVACY ADVISORY NOTICE**

Letters or other written comments provided may be published in the Final EA. As required by law, comments will be addressed in the Final EA and made available to the public. Any personal information provided will be kept confidential. Private addresses will be compiled to develop a mailing list for those requesting copies of the Final EA. However, only the names of the individuals making comments and their specific comments will be disclosed. Personal home addresses and phone numbers will not be published in the Final EA.

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## ACRONYMS AND ABBREVIATIONS

ABNCP	Airborne Command Post
ACM	asbestos-containing material
AFB	Air Force Base
AFFF	Aqueous Film-Forming Foam
AFI	Air Force Instruction
AFOSH	Air Force Occupation Safety and Health
AICUZ	Air Installation Compatible Use Zone
ALCS	Airborne Launch Control System
bgs	below ground surface
BMP	Best Management Practice
CAA	Clean Air Act
CAAA	Clean Air Act Amendments
CEQ	Council on Environmental Quality
CERCLA	Comprehensive Environmental Response, Compensation, and Liability Act
CFR	Code of Federal Regulations
CO	carbon monoxide
CWA	Clean Water Act
dB	decibel
dBA	A-weighted decibel
DLA	Defense Logistics Agency
DNL	day-night average sound level
DoD	Department of Defense
DOPAA	Description of Proposed Action and Alternatives
EA	Environmental Assessment
EIAP	Environmental Impact Analysis Process
EIS	Environmental Impact Statement
EO	Executive Order
EPF	Environmental Planning Function
EPM	Expanded Phase Maintenance
ERP	Environmental Restoration Program
ESA	Endangered Species Act
FONSI	Finding of No Significant Impact
ft	feet
FY	Fiscal Year
gpd	gallons per day
gpm	gallons per minute
HAZMINCEN	Hazardous Minimization Center
HMMP	Hazardous Materials Management Program
hr	hour
ICRMP	Integrated Cultural Resources Management Plan
IICEP	Interagency and Intergovernmental Coordination for Environmental Planning
IWTP	Industrial Wastewater Treatment Plant



**ACRONYMS AND ABBREVIATIONS (CONT.)**

LBP	lead-based paint
lbs	pounds
LTM	Long Term Monitoring
kV	kilovolts
MFH	military family housing
mgd	million gallons per day
MILCON	Military Construction
MSL	mean sea level
MOGAS	Motor Gasoline
MSDS	material safety data sheets
MSGP	Multi-Sector General Permit
NAA	non-attainment area
NAAQS	National Ambient Air Quality Standards
NAVFAC	Naval Facilities Engineering Command
NEPA	National Environmental Policy Act
NHPA	National Historic Preservation Act
NMCI	Navy/Marine Corps Intranet
NO <sub>2</sub>	nitrogen dioxide
NO <sub>x</sub>	nitrogen oxides
NOI	notice of intent
NPDES	National Pollutant Discharge Elimination System
NRHP	National Register of Historic Places
NSNF	Non-Strategic Nuclear Forces
NWI	National Wetlands Inventory
O <sub>3</sub>	ozone
OC-ALC	Oklahoma City Air Logistics Center
ODEQ	Oklahoma Department of Environmental Quality
OG&E	Oklahoma Gas and Electric
O&M	Operations and Maintenance
ONG	Oklahoma Natural Gas Company
OSHA	Occupational Safety and Health Administration
PAOC	Potential Area of Concern
Pb	lead
PL	Public Law
PM <sub>10</sub>	particulate matter equal to or less than 10 micrometers in aerodynamic diameter
PM <sub>2.5</sub>	particulate matter equal to or less than 2.5 micrometers in aerodynamic diameter
PPE	Personal Protective Equipment
ppm	parts per million
PSD	Prevention of Significant Deterioration
PVC	polyvinyl chloride
RCRA	Resource Conservation and Recovery Act
ROD	Record of Decision

**ACRONYMS AND ABBREVIATIONS (CONT.)**

ROI	Region of Influence
SCW-1	Strategic Communications Wing ONE
SF	square feet
SIP	State Implementation Plan
SO <sub>2</sub>	sulfur dioxide
SOP	Standard Operating Procedure
SPL	sound pressure level
SWP3	Storm Water Pollution Prevention Plan
TACAMO	Take Charge and Move Out
TF-124	Task Force 124
tpy	tons per year
TSCA	Toxic Substances Control Act
µg/m <sup>3</sup>	micrograms per cubic meter
UFC	United Facilities Criteria
US	United States
USAF	United State Air Force
USC	United States Code
USEPA	United States Environmental Protection Agency
USSTRATCOM	United States Strategic Command
VOC	volatile organic compound
VLF	Very Low Frequency

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## **CHAPTER 1 PURPOSE OF AND NEED FOR ACTION**

This chapter begins with an overview of Tinker AFB, describing its history and current mission. Also included in this chapter is a statement of the purpose of and need for action, a description of the location of the proposed action, identification of the decision to be made, a description of the scope of the environmental review, identification of applicable regulatory requirements, and an introduction to the organization of the document.

### **1.1 INSTALLATION LOCATION, HISTORY, AND CURRENT MISSION**

Tinker Air Force Base (Tinker AFB) is the headquarters for the United States Air Force (USAF) Oklahoma City Air Logistics Center (OC-ALC). The OC-ALC is the largest of three air logistics centers within the Air Force Material Command and is the leader in providing depot maintenance for the USAF's most sophisticated weapons systems. Tinker AFB is also the home to the United States (US) Navy's Strategic Communications Wing 1 (STRATCOMMWING ONE or SCW-1).

Tinker AFB is located in Oklahoma County, approximately 10 miles southeast of downtown Oklahoma City, Oklahoma, in the south-central U.S. Approximately 732 buildings with 18.5 million square feet of floor space are located within Tinker AFB's estimated 5,400 acres. In addition to employing approximately 27,000 military and civilian personnel, the base also provides temporary lodging; a campground; an off-base elementary school; three childcare centers; a clinic; and a commissary, exchange, mall and shoppette.

Tinker AFB was originally established in 1941 as Tinker Field, a 960-acre maintenance and supply depot. The base expanded following World War II, undertaking aircraft assembly and continuing to support aircraft and weapons for the ensuing decades.

In 1963, the Navy was tasked with a unique part of naval aviation. The nation needed a reliable strategic communications system between the President and other national command authorities with nuclear ballistic missile submarines. This system had to survive any hostile military action. The Navy created such a system, modifying a Marine Corps KC-130 Hercules transport aircraft with a Very Low Frequency (VLF) radio transmitter capable of communicating with submerged missile submarines. The experiment was a success and TACAMO, with its "Take Charge and Move Out" mission, was born.

A fleet of 16 E-6A aircraft began replacing 24 EC-130/C-130 aircraft in 1989 with the last aircraft accepted by the Navy in 1994. Due to the age of the USAF's EC-135 fleet, the E-6B was conceived as a replacement for the EC-135. The E-6B modified an E-6A by adding battlestaff positions and other specialized equipment. The E-6B is a dual-mission aircraft capable of fulfilling either the E-6A mission or the airborne strategic command post mission and is equipped with an ALCS. The ALCS is capable of launching U.S. land based intercontinental ballistic missiles. The first E-6B aircraft was accepted in December 1997 and the E-6B assumed its dual operational mission in October 1998. The E-6 fleet was completely modified to the E-6B configuration in 2003.

In years past, TACAMO provided communications capability only to submarines with ballistic missiles. Currently, TACAMO provides command and control capability for all three strategic platforms including submarines, bombers and land-based missiles sites. On October 1, 1998, the U.S. Navy's fleet of E-6Bs replaced the EC-135 in performing the "Looking Glass" mission flown for over 29 years by the USAF. Two Navy E-6 squadrons were added to Tinker AFB in the late 1990s. The E-6 squadrons maintain a flying/communications link between the White House and ballistic missile submarines around the world. Tinker AFB provided front line support to the forces engaged in Operation Desert Shield and Desert Storm in the early 1990s, and for the more recent Operation Enduring Freedom, Operation Iraqi Freedom, and the Global War on Terrorism.

SCW-1 is a Navy Air Wing fully integrated on Tinker AFB, carrying out a Navy mission in joint operations. SCW-1 is also Task Force 124 (TF-124) and reports directly to Commander, U.S. Strategic Command (USSTRATCOM).

SCW-1 is an administrative command and responsible to Commander Naval Air Forces for manning, training and equipping the Navy squadrons responsible for Nuclear Command and Control Communications to the nation's nuclear platforms. SCW-1 is home to over 1,400 active duty sailors, 164 contractors and 33 Department of Defense (DoD) civilians that accomplish the TACAMO mission. The dedicated sailors and civilians work together to provide maintenance, security, operations, administration, training and logistics support for the Navy's E-6 aircraft fleet based at Tinker AFB. The Navy occupies several buildings located on Tinker AFB including lodging, warehouse, and TACAMO aviation and administrative facilities, including the Building 820 Hangar.

TF-124 is an operational command, responsible to USSTRATCOM, to provide the airborne platform and aircrew for the U.S. Strategic Command Airborne Command Post (ABNCP), the Airborne Launch Control System (ALCS), the Non-Strategic Nuclear Forces (NSNF) Theater Commanders ABNCP and the TACAMO EAM Relay missions. It has direct responsibility for Fleet Air Reconnaissance Squadrons Three, Four, Seven and various training units.

## **1.2 PURPOSE OF AND NEED FOR ACTION**

SCW-1 is tasked with providing survivable, endurable, reliable airborne command, control and communications in support of USSTRATCOM. The purpose of the proposed action is to assist SCW-1 in meeting its national priority mission.

In view of lifecycle maintenance requirements associated with the E-6B aircraft, an Expanded Phase Maintenance (EPM) program was developed. The EPM is a periodic inspection process performed in squadron hangars by depot-level maintenance teams in conjunction with squadron personnel performing organizational level phase inspections. The purpose is to identify and monitor aircraft structural fatigue, corrosion, and other structural/system conditions critical to extending aircraft service life, which is currently projected to 2038.

Since 1994, upgrades to the E-6 fleet, technology and mission driven modifications, and emerging aging aircraft issues have incrementally increased the depot maintenance requirement to the extent that two and a half hangars are required at all times to perform the required



maintenance activities. Without adequate hangar space and availability, the impact to operations as well as the cost of operations and maintenance is significant.

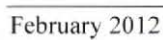
In order to accommodate depot maintenance requirements, SCW-1 routinely lacks space to perform scheduled and unscheduled organizational level maintenance on at least one aircraft for which all other logistics elements are in place. Reduced hangar availability also forces maintenance to be performed on the flight line in potential sub-standard conditions. This practice also reduces the number of available docks to secure aircraft in severe weather, increasing fly-away requirements by at least one aircraft during each weather event. Reduced hangar availability for EPM and in-service repair therefore increases depot aircraft backlog and downtime, further reducing operational aircraft availability.

To support mission requirements and provide adequate aircraft maintenance facilities, SCW-1 has determined the need to construct one Type II aircraft maintenance bay as an addition to existing aircraft hangars located within Building 820 at Tinker AFB. The aircraft maintenance bay would provide facilities to accommodate one E-6B aircraft and provide aircraft and fuel cell maintenance, maintenance crew and equipment space, administrative space, and avionics and maintenance shops. The Proposed Action would require demolition of two structures, Buildings 815 (Shed/Frequency Control) and Building 816 (Avionics), and sections of the existing parking apron located west of Hangar 820 which are located within the footprint of the Proposed Action.

### **1.3 LOCATION OF THE PROPOSED ACTION**

The Proposed Action would occur within the main installation property on Tinker AFB, which is located within the incorporated city limits of Oklahoma City, Oklahoma. Centered 10 miles southeast of downtown Oklahoma City, Tinker AFB is bordered to the north by Interstate 40 and Southeast 29th Street, to the east by Douglas Boulevard, to the south by Southeast 74th Street, and to the west by Sooner Road (**Figure 1-1**). Incorporated areas immediately surrounding the installation include Midwest City to the north and Del City to the northwest. Buildings 815, 816, and 820, and the proposed maintenance bay hangar addition are located in the south-central part of the main installation property, west of the main runway complex (**Figure 1-2**).











## **1.4 DECISION TO BE MADE**

A standard DoD form identified as DD Form 1391, Military Construction Program, is used by the DoD to state requirements and justifications in support of funding requests for military construction projects. A DD Form 1391 was completed for the proposed project on July 15, 2011 and provides a description of the proposed project construction, current requirements, a market analysis, and supplemental data including potential environmental and operational impacts. The analysis determined that a National Environmental Policy Act (NEPA) analysis is required before the project can proceed. In addition, Air Force Form 813, Request for Environmental Impact Analysis was completed for the proposed project on October 20, 2010. The analysis determined that the project is classified as a major federal action, and that an Environmental Assessment (EA) is required before the project can proceed.

In accordance with the DD Form 1391 and AF Form 813 determinations, and per the requirements of NEPA, this EA has been prepared to identify, evaluate and document the potential environmental consequences for the construction of a new hangar addition to Building 820.

This EA evaluates the potential environmental consequences associated with the proposed construction of a modified Type II aircraft maintenance hangar as an addition to Building 820 at Tinker AFB. Based on this information, the Air Force will determine if the proposed action qualifies for a Finding of No Significant Impact or will require the preparation of an Environmental Impact Statement further review and Record of Decision (ROD). As required by the NEPA and its implementing regulations, preparation of an environmental document must precede final decisions regarding the proposed project, and be available to inform decision-makers of the potential environmental impacts.

## **1.5 SCOPE OF THE ENVIRONMENTAL REVIEW**

NEPA, as amended, requires federal agencies to consider environmental consequences in their decision-making process. The President's Council on Environmental Quality (CEQ) has issued regulations to implement NEPA that include provisions for both the content and procedural aspects of the required environmental impact analysis. The Air Force Environmental Impact Analysis Process (EIAP) is accomplished through adherence to the procedures set forth in CEQ regulations (40 Code of Federal Regulations [CFR] Sections 1500-1508) and 32 CFR 989 (EIAP), 15 July 1999, and amended 28 March 2001. These federal regulations establish both the administrative process and substantive scope of the environmental impact evaluation designed to ensure that deciding authorities have a proper understanding of the potential environmental consequences of a contemplated course of action.

This EA identifies, describes, and evaluates the potential environmental impacts that are associated with the demolition of two existing buildings and partial pavement sections located west of Building 820 and the construction of a Type II maintenance hangar addition to the existing hangar bays located at Building 820, also taking into consideration possible cumulative impacts from other actions. The potential environmental effects of taking no action are also



described. As appropriate, the affected environment and environmental consequences of the action may be described in terms of a regional overview or a site-specific description. The most current information is used as the baseline condition.

The USAF has announced other independent actions for Tinker AFB (see Section 2.4) concurrent in time or space with the Proposed Action. The environmental impacts of these other actions, in most cases, have been analyzed in separate NEPA documents. In addition, other actions are planned for Tinker AFB and the surrounding community (see Section 4.3.1). Through Intergovernmental and Interagency Coordination for Environmental Planning (IICEP), requests have been made for information on these and other planned actions in the surrounding community. IICEP correspondence and responses are included in Appendix B. This EA addresses the environmental impacts of these other actions only in the context of potential cumulative impacts, if any (Section 4.3).

#### **1.5.1 Resource Areas Addressed in Detail**

Resource areas that could be affected by the proposed or alternative actions have been selected to allow for a comprehensive analysis of potential impacts. The following resource areas are discussed in detail in the EA:

- Noise
- Land Use
- Air Quality
- Water Resources
  - Surface Water
  - Groundwater
  - Wetlands
  - Floodplains
- Earth Resources
- Hazardous Materials and Wastes (including Environmental Restoration Program [ERP] sites)
- Occupational Health and Safety
- Sustainability Objectives and Targets
- Infrastructure, Utilities and Energy Systems
  - Sanitary Sewer
  - Potable Water
  - Solid Waste
  - Transportation
  - Electricity/Natural Gas

#### **1.5.2 Resource Topics Eliminated from Detailed Analysis**

The following resource areas or issues were eliminated from the list of potential impacts because there would be no effects or the effects of the Proposed Action would be insignificant. Resource areas that have been eliminated from further detailed study in this document and the rationale for eliminating them are presented below:

- Aircraft Operations. There would be no change to the number of aircraft assigned to the installation. Therefore, aircraft operations would not be affected by the proposed or alternative actions.
- Airspace Use and Management. There would be no change in the airspace associated with aircraft operations. Therefore, airspace use and management would not be affected by the proposed or alternative actions.
- Biological Resources: The proposed project would be constructed within the existing TACAMO area of Tinker AFB that has already been previously developed. The proposed project site currently consists of a paved concrete pad used as a parking apron and storage area. There is no vegetation or wildlife habitat that exists within the proposed project area and there are no threatened or endangered species known to exist near this location.

The project would require the relocation of security fencing to the west of Building 820. The new fencing would be relocated into an area of common herbaceous species which is regularly mowed and maintained. While this area may provide habitat for some commonly occurring wildlife species, it is considered very limited and of poor quality. Construction of the proposed project would therefore not be expected to adversely impact biological resources including wildlife habitat or threatened and/or endangered species. Biological resources are therefore not assessed further in this EA.

- Visual Resources: The majority of the visual environment within the TACAMO area of Tinker AFB consists of military buildings and supporting structures for the airfield (e.g. aircraft, taxiways, runways, hangar buildings, support buildings, control tower etc.). Adjacent land uses include airfield operations and maintenance areas, commercial areas, and limited open space. The construction of the proposed hangar addition to Building 820 would have no significant adverse impacts on the visual resources of the area. The proposed facility would be consistent with the existing military and airfield functions and the overall context of the site. In addition, the hangar addition would be similar in size and appearance to existing hangar bays located in Building 820. Visual resources are therefore not assessed further in this EA.
- Cultural Resources: The proposed project would be constructed within an existing developed area of Tinker AFB with a low potential to encounter intact archeological resources. The existing hangars located within Building 820, and Buildings 815 and 816 that would be demolished under the Proposed Action are not considered historic structures or included in an historic district that is eligible for inclusion on the National Register of Historic Places (NRHP). The Proposed Action would not adversely affect any historic properties, structures, or districts that exist on Tinker AFB. In regards to archeological resources, due to the developed nature of the project area, the existence of such resources is unlikely. However, Tinker AFB's Integrated Cultural Resources Management Plan (ICRMP) provides procedures to be followed in the unlikely event of inadvertent



discoveries of cultural resources materials or human remains identified during demolitions, construction and subsequent operation/maintenance activities related to the Proposed Action. Cultural resources are therefore not assessed further in this EA.

- Socioeconomics: Local construction crews would be used for construction of the Proposed Action, which would result in a positive impact to the economy by a short-term increase in employment opportunities. The proposed project would not adversely alter socioeconomic factors such as changes in local economic bases, salary levels, land use zoning, plans or programs of other agencies, or a particular socioeconomic group. Socioeconomics are therefore not assessed further in this EA.
- Environmental Justice: Executive Order 12898 requires all federal agencies to incorporate environmental justice into their missions by identifying and addressing disproportionately high and adverse human health or environmental effects of their programs and policies on minorities and low-income populations and communities. As the proposed project is to be constructed within the existing boundaries of Tinker AFB and within a previously developed area, the Proposed Action would not have disproportionately high, adverse effects on minorities or low-income populations or communities. Environmental Justice is therefore not assessed further in this EA.

## 1.6 APPLICABLE REGULATORY REQUIREMENTS

This EA is part of the EIAP for the proposed project as set forth in 32 CFR 989, 15 July 1999, and amended 28 March 2001; CEQ regulations; Department of Defense (DoD) Directive 4715.1 (*Environmental Security, March 19, 2005*); as well as DoD Instruction 4715.9 (*Environmental Planning and Analysis*).

NEPA, as amended, requires federal agencies to consider, as part of the decision-making process, the environmental consequences of their proposed and alternative actions. The USAF considers the potential environmental impacts identified during the EIAP in its decision. The following paragraphs describe the laws and regulations that apply or may apply to the proposed and alternative actions.

### 1.6.1 Interagency and Intergovernmental Coordination

Federal, state, and local agencies with jurisdiction that could be affected by the Proposed Action have been notified and consulted. A complete listing of the agencies consulted is included in Chapter 6 and IICEP correspondence and responses are included in Appendix A. This coordination fulfills the Interagency Coordination Act and Executive Order (EO) 12372, which require federal agencies to cooperate with and consider state and local views while implementing a federal proposal. EO 12372 is implemented by the Air Force in accordance with Air Force Instruction (AFI) 32-7060, *Interagency and Intergovernmental Coordination for Environmental Planning*.



### **1.6.2 Permits**

It would be the construction contractor's responsibility to ensure permits are identified and obtained from the installation, local, state, and federal agencies. The following permits would be required in implementing the Proposed Action identified in this analysis:

- An Oklahoma Department of Environmental Quality (ODEQ) National Pollutant Discharge Elimination System (NPDES) General Permit OKR10 for Storm Water Discharges from Construction Activities within the State of Oklahoma would be required under the Clean Water Act (CWA) Section 402 requirements.
- A Notice of Intent (NOI) for Storm Water Discharges filed with ODEQ and Tinker AFB including the creation and implementation of a Storm Water Pollution Prevention Plan (SWP3) for the proposed demolition and construction activities.
- A Tinker AFB Title V air operating permit for demolition and construction activities requiring modification to include additional sources of air pollution such as the proposed boiler/heat exchanger unit and the diesel-powered fire pump.

### **1.6.3 Other Regulatory Requirements**

The EA considers all applicable laws and regulations, including but not limited to the following:

- Clean Air Act (CAA) of 1970 (42 United States Code [USC] 7401 et seq.) as amended in 1977 and 1990 (Public Law (PL) 91-604)
- Air Quality General Conformity regulations (40 CFR Parts 6, 51 and 93).
- Noise Control Act of 1972 (PL 92-574) and Amendments of 1978 (PL 95-609)
- AFI 32-7062, Air Field Planning
- Clean Water Act (CWA) of 1977, (PL 95-217)
- Section 401 and 404 of the Federal Water Pollution Control Act of 1972 (PL 92-500)
- U.S. EPA, Subchapter D-Water Programs 40 CFR 100-149 (105 ref)
- EO 11990, Protection of Wetlands
- EO 11988, Floodplain Management
- Endangered Species Act (ESA) of 1973 (16 USC 1531-1542)
- Fish and Wildlife Coordination Act of 1958 (PL 85-654)
- (PL 85-654)
- Migratory Bird Treaty Act of 1918
- Pollution Prevention Act of 1990 (42 USC 13101 and 13102 et seq.)
- Resource Conservation and Recovery Act of 1976(PL 94-5800)
- Occupational Health and Safety Act of 1970 ((29 CFR 1910 and 29 CFR 1926)
- Archeological Resources Protection Act of 1979 (PL 96-95)
- National Historic Preservation Act (NHPA) (16 USC 470 et seq.) (PL 89-865) and Amendments of 1980 (PL 96-515) and 1992 (PL 102-575)
- Native American Graves Protection and Repatriation Act of 1990 (PL 101-601)

- Energy Independence and Security Act of 2007 (PL 110-140)
- Energy Policy Act of 2005 (PL 109-58)
- AFI 32-7040, Air Quality Compliance
- AFI 32-7061, Environmental Impact and Analysis Process
- AFI 91-202, The US Air Force Mishap Prevention Program
- EO 12898, Federal Actions to Address Environmental Justice in Minority Populations and Low-Income Populations
- EO 12780, Federal Agency Recycling and the Council on Federal Recycling and Procurement Policy
- EO 13045, Protection of Children from Environmental Health Risks and Safety Risks
- EO 13123, Sustainable Building Design
- COMSTRATCOMMWING ONE INST 5100.8E, Hazardous Material Control and Management Program
- United Facilities Criteria (UFC) 3-210-10, Low Impact Development

## 1.7 INTRODUCTION TO THE ORGANIZATION OF THE DOCUMENT

This EA is organized into seven chapters.

*Chapter 1:* Contains a statement of the purpose of and need for the Proposed Action, introduces the project location, identification of the decision to be made, a summary of the scope of the environmental review, identification of applicable regulatory requirements, and a description of the organization of the document.

*Chapter 2:* Identifies the project selection criteria, provides a detailed description of the Proposed Action and the No-Action Alternative, identifies alternatives eliminated from further consideration, identifies other Tinker AFB actions located near the project site, provides a comparison matrix of how each alternative meets the project selection criteria, provides a summary of potential environmental impacts associated with each project alternative, identifies the Preferred Alternative, and describes mitigation measures and Best Management Practices (BMPs) anticipated for potential impacts.

*Chapter 3:* Contains a general description of the current conditions of the resources that could potentially be affected by the Proposed Action or No-Action alternatives.

*Chapter 4:* Describes the potential environmental consequences of the Proposed Action and No-Action, includes a discussion of mitigation measures as necessary for each resource, summarizes other actions announced for Tinker AFB and the surrounding community, and includes a discussion of potential cumulative impacts associated with implementation of the Proposed Action.

*Chapter 5:* Lists preparers of this document.

*Chapter 6:* Lists persons and agencies consulted in the preparation of this EA.

*Chapter 7:* Lists source documents relevant to the preparation of this EA.



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## CHAPTER 2

### DESCRIPTION OF THE PROPOSED ACTION AND ALTERNATIVES

This chapter identifies the project selection criteria, and describes the Proposed Action and the No-Action Alternative. Alternatives that were considered and dismissed are also discussed. The chapter includes a comparison of how each alternative meets the project selection criteria and provides a summary of potential environmental impacts associated with each project alternative evaluated. Finally, this section identifies the Preferred Alternative and summarizes the rationale for its selection.

#### 2.1 SELECTION CRITERIA

SCW-1 is tasked with providing survivable, enduring, reliable airborne command, control and communications in support of USSTRATCOM. To support mission requirements, SCW-1 has determined the need to construct one modified Type II aircraft maintenance bay as an addition to existing aircraft hangars located within Building 820 at Tinker AFB.

Any project alternative considered should, at a minimum:

- Ensure war readiness.
- Provide adequate and efficiently configured facilities to accommodate aircraft and fuel cell maintenance, maintenance crew and equipment space, and avionics and maintenance shop activities.
- Improve hangar availability for scheduled and unscheduled maintenance activities.
- Minimize maintenance and out of service time.
- Reduce costs associated with depot maintenance activities.
- Provide facility solutions on a timeframe and budget that allows for successful execution of SCW-1 mission requirements.
- Provide facility solutions that comply with all legal and regulatory requirements, including but not limited to those of the CEQ, NEPA, EIAP, Navy, USAF, US Environmental Protection Agency (USEPA), ODEQ, applicable Executive Orders, and the Tinker AFB.

#### 2.2 PROJECT ALTERNATIVES

##### 2.2.1 Proposed Action

##### *Description of the Proposed Action*

The Proposed Action includes the construction of a Type II aircraft maintenance bay hangar, and associated aircraft access and parking aprons. The Type II hangar bay module is designed to accommodate smaller transport aircraft such as the E-6B. The proposed single bay hangar would be constructed as an addition to and located at the west end of existing hangars at Building 820. The high bay hangar would be designed for fuel cell maintenance operations and also provide

1 maintenance, crew and equipment, and other support space in support of the 60 aircraft  
2 maintenance personnel of the TACAMO E-6B aircraft squadron.

3 The proposed approximately 45,000 SF hangar addition project includes an approximate 28,245  
4 SF Aircraft Maintenance Bay Hangar/Apron, an approximate 6,243 SF Aircraft Access Apron,  
5 an approximate 6,372 SF Aircraft Parking Apron, an approximate 1,615 SF Maintenance-01  
6 Space, an approximate 1,615 SF Maintenance-02 Space, and an approximate 355 SF  
7 Navy/Marine Corps Intranet (NMCI) Telecommunications Room.

8 The hangar addition would be constructed as a multi-story, high bay hangar, with dedicated shop  
9 space, flight line operations, and maintenance functions. The hangar addition would also be  
10 designed with the necessary clearances with the installation of an overhead crane system. The  
11 hangar would require 57.5 feet of clear height in order to accommodate an aircraft and the  
12 overhead crane system. The hangar addition would be steel frame construction with suspended  
13 cantilever trusses supporting the hangar bay roof. The roof would be a standing seam metal roof  
14 over rigid insulation on steel deck supported by steel joists. Second floor framing in the  
15 administrative area would be concrete on steel floor decking. Exterior walls would be metal  
16 siding on the hangar bay and concrete masonry on the operations/administrative area. The  
17 ground floor would be slab on grade with embedded grounding grid and floor drainage system in  
18 the hangar bay. The hangar addition would include a crew/equipment/administrative area at the  
19 rear of the hangar bay

20 Electrical systems would include fire protection, mass notification system, a 400 hertz power  
21 distribution system, a 28 dc volt system, lighting, and communication systems. Mechanical  
22 utilities would be tied into existing systems and include water, sewer, gas distribution, and air  
23 conditioning.

24 Fire lane access for emergency vehicles would be provided and the existing security fencing west  
25 of Building 820 would be relocated as needed to support the project.

26 Implementation of the Proposed Action would require construction of an emergency vehicle  
27 access route around the west side of the hangar addition (**Figure 2-1**). The access route would  
28 require the removal of several small, ornamental type trees. A section of the existing security  
29 fencing along the west side of Building 820 would also require relocation. Both features would  
30 be constructed or relocated slightly to the west; however, a small section of the existing vehicle  
31 parking lot located near the southwest corner of Building 820 would be removed and an  
32 undetermined number of vehicle parking spaces would be lost. Also, no additional employees  
33 would be hired or transferred to the site as a result of the Proposed Action. Therefore, minor  
34 long-term impacts to parking would occur as slightly fewer parking spaces would be available  
35 for use at Building 820.

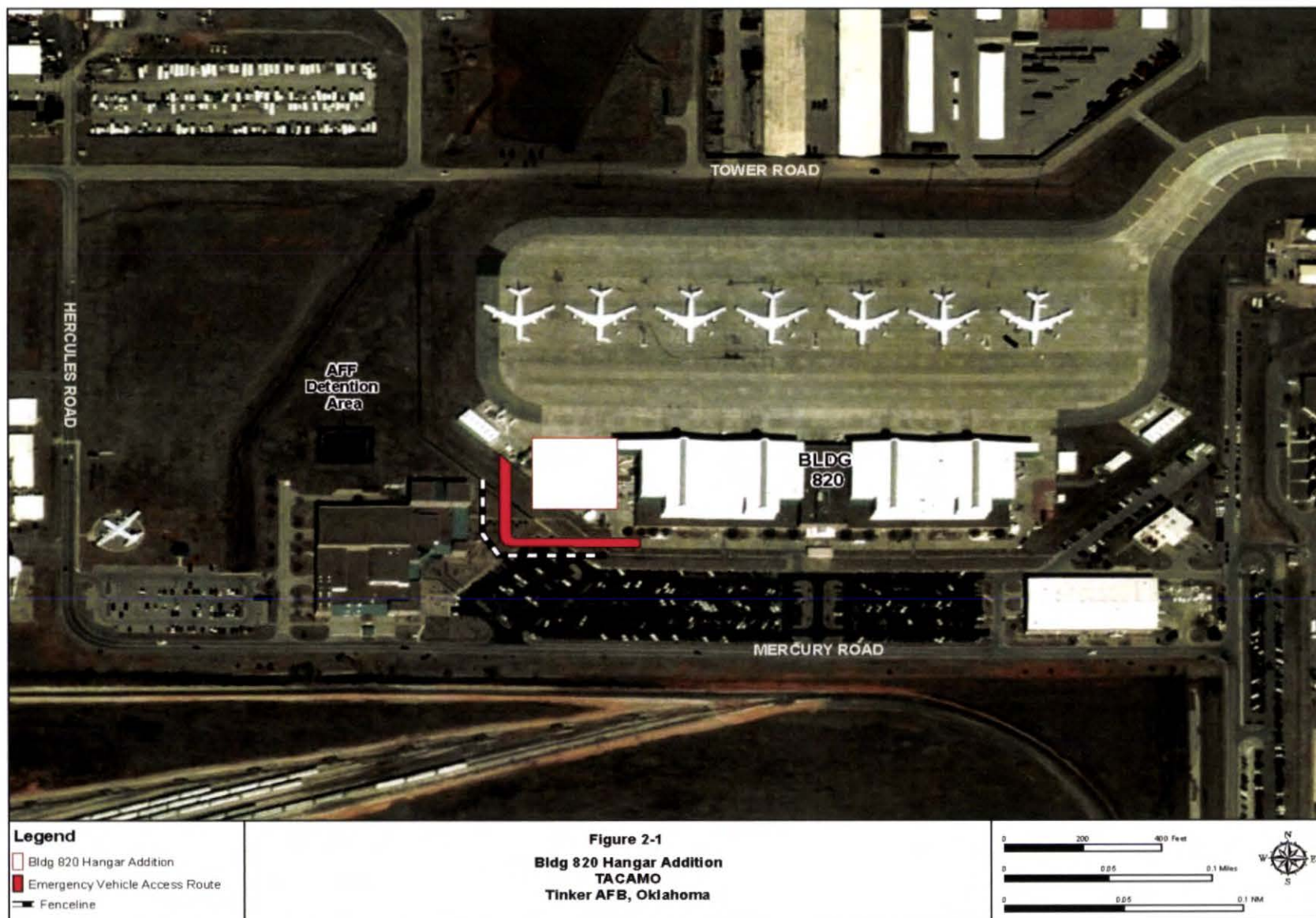
36 The Proposed Action would also include the relocation of functions contained within Building  
37 815 (Shed/Frequency Control) and Building 816 (Avionics) which are located within the  
38 footprint of the Proposed Action. These structures along with pavement located west of Hangar  
39 820 would be demolished prior to implementation of the Proposed Action. The project would  
40 incorporate the relocated functions and personnel into the maintenance hangar addition.  
41 Temporary trailer facility space for both would be provided while the hangar is under



1 construction. The project may also require the relocation of existing Milstar/Satellite  
2 Communications equipment and an aboveground fuel tank located on the west side of Building  
3 820.

4 The proposed Building 820 aircraft maintenance hangar addition and other key features are  
5 shown in **Figure 2-1**. The key features of the Proposed Action are currently described within the  
6 DD Form 1391 FY 2014 Military Construction Program document and on the AF Form 813.  
7 Implementation of the Proposed Action would save the federal government in excess of \$500K  
8 annually throughout the life-cycle of the E-6B program.

9 According to the DD Form 1391, and confirmed with the Naval Facilities Engineering Command  
10 (NAVFAC) Midwest personnel, a preliminary design of the new hangar addition is not yet  
11 available for inclusion in this EA.





### ***Schedule***

Based on the proposed contract schedule as shown in the FY 2014 Military Construction Program request, the estimated date of contract award for the Proposed Action would be November 2013. Construction would occur over an approximate 18-month period, beginning in December 2013 and ending in June 2015.

### ***Project Funding***

According to the DD Form 1391 financial estimates, the total estimated cost of the proposed Building 820 aircraft maintenance hangar addition project would be approximately \$16,070,000. It is anticipated that the Proposed Action will be included as a line item in the Navy's Fiscal Year (FY) 2014 Military Construction (MILCON) Program request.

Ongoing Operations and Maintenance (O&M) funding for the Proposed Action would be incorporated into existing O&M annual requests for TACAMO/Building 820.

#### **2.2.2 No-Action Alternative**

CEQ regulations require consideration of the No-Action Alternative for all proposed actions. The No-Action Alternative serves as a baseline against which the impacts of the Proposed Action can be compared and is consequently carried forward for further evaluation in the EA.

Under the No-Action Alternative, an addition to Building 820 would not be constructed and Buildings 815 and 816 would not be demolished. The SCW-1 would continue to use existing operational hangars for depot lifecycle maintenance activities. Due to inadequate fuel cell and maintenance hangar availability at Tinker AFB, Navy squadrons would continue to divert aircraft to other geographic locations, resulting in increased operational costs, maintenance and out of service times, thus impacting mission requirements. Additionally, squadrons would continue to divert aircraft to other geographic locations during inclement weather incidents.

Under the No-Action Alternative, the squadron maintenance needs would not be met. In addition, depot aircraft backlog and downtime would be increased due to lack of hangar space. Reduced hangar availability would also degrade the ability to meet USSTRATCOM taskings and thus compromise mission readiness.

### ***Evaluation of the Proposed Action against the Project's Selection Criteria and in Consideration of its Potential Environmental Consequences***

Tables presented in Section 2.5 of this document summarize the results of the evaluation of the No-Action and Proposed Action alternatives against the project's selection criteria and its assessment of potential environmental consequences. A more detailed analysis of all points captured within Table 2-2 is available throughout Chapters 3 and 4 of this document.

## **2.3 ALTERNATIVES CONSIDERED BUT DISMISSED**

Other potential project alternatives that were eliminated from further consideration include:



- Renovation or modernization of an existing hangar. This alternative was dismissed as there are no facilities available that could be renovated for use as an aircraft maintenance hangar and there are no unused apron spaces available for reconfiguration or renovation.
- Leasing of an off-base hangar. Although there is a commercial aircraft hangar in the local area that meets Navy requirements for this project, it is not available to the Navy. Also, there are no nearby facilities capable of providing aircraft parking aprons.
- The use of other DoD or federal agency facilities. There are no other DoD or federal agency facilities available for use in proximity to Tinker AFB that could provide the space or facilities required to meet the need and purpose of the project.
- The construction of a two-bay hangar located to the west of Building 830. As presented below in Section 2.4, construction of a single bay hangar west of Building 830 is proposed. However, current operational demands do not support the construction of a dedicated two-bay hangar at this time. In addition, such a hangar at this location would impact an environmentally sensitive area requiring the diversion or relocation of an existing stream.

## **2.4 OTHER ACTIONS ANNOUNCED FOR TINKER AFB AND AREA SURROUNDING PROPOSED PROJECT LOCATION**

This EA also considers the effects of other actions announced for Tinker AFB and the area surrounding the Proposed Action site. **Figure 2-2** shows other proposed development actions announced for areas located near TACAMO. The development actions include:

### **TACAMO**

- Construction of a Navy 1-bay hangar (the Proposed Action)
- Expansion of the TACAMO Parking Apron/Ramp
- Construction of a future Single Bay Hangar west of Building 830

### **East of TACAMO/Building 820**

- Relocation of 966 Airborne Air Control Squadron to the new 552d Maintenance Group Complex (Building 989)
- Demolition of Building 986
- Installation of a 3,000 gallon fuel tank near Building 976

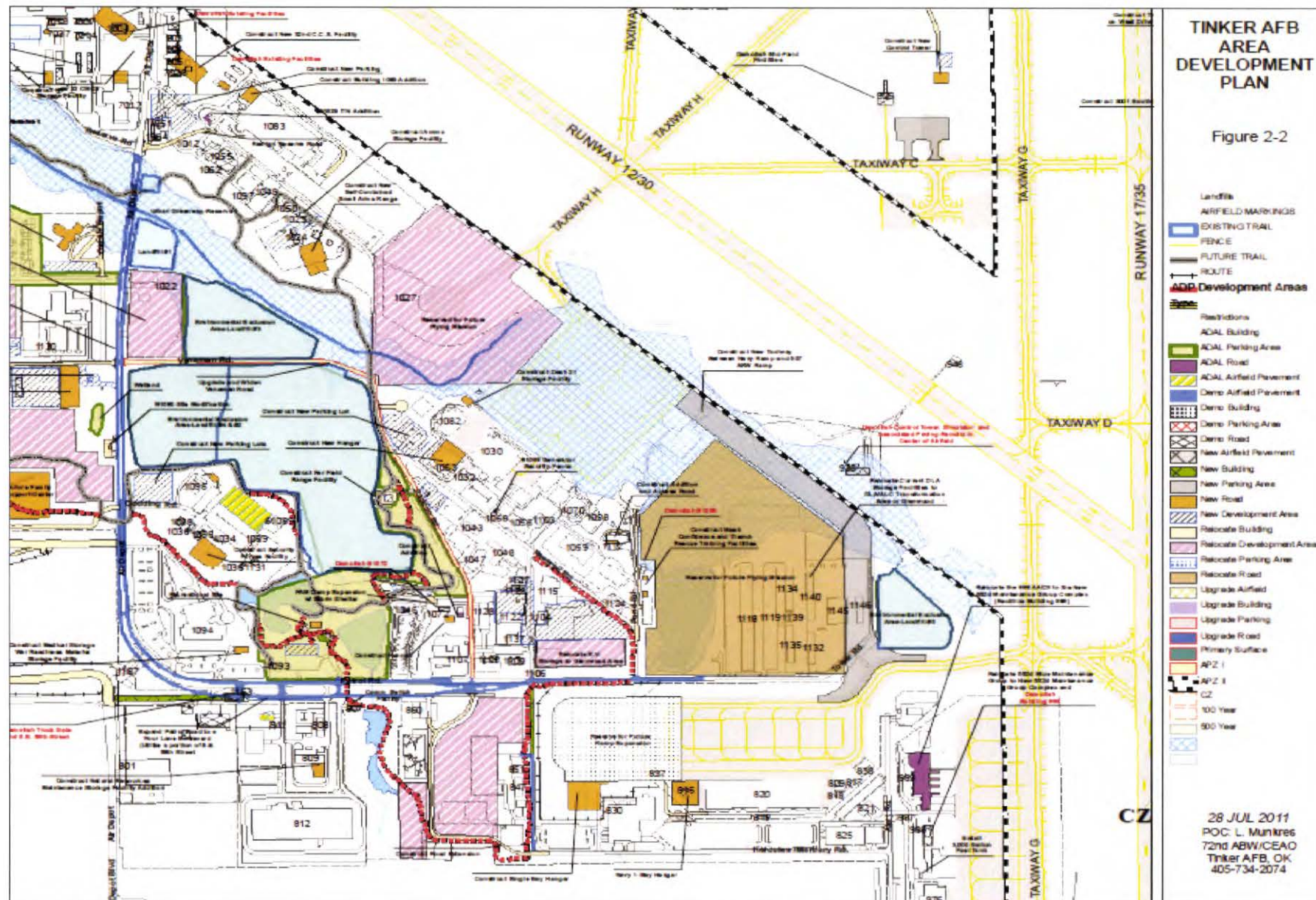
**North of TACAMO/Building 820**

- Relocation of current Defense Logistics Agency (DLA) Storage Facilities to DLA/ALC Transformation Area or Glenwood
- Reservation of the area for Future Flying Mission
- Construction of a new taxiway between the Navy Ramp (TACAMO) and the 507 ARW Ramp
- Demolition of the Control Tower, Simulator and associated pavement. Rebuild in center of airfield.
- Relocation of the RV Storage to Glenwood Area. Construct new Development and Parking areas

**West of TACAMO/Building 820**

- Expansion of Patrol Road to a four-lane boulevard (utilize a portion of SE 59th Street)
- Reservation of the area for new development (west of Hercules Road)
- Extending Mercury Road to the west, demolish the north end of Hercules Road
- Construction of future trail segments from north of Tower Road to west of Hercules Road, connecting with trails at the FAM Camp Expansion Area







## 2.5 ALTERNATIVES COMPARISON

Table 2-1 provides a summary and comparison of the Proposed Action and the No-Action Alternatives, as they relate to the project selection criteria presented in Chapter 2.1.

**Table 2-1 Comparison of Project Section Criteria**

Selection Criteria	No-Action Alternative	Proposed Action
Ensure War Readiness.	The No-Action Alternative would jeopardize the ability for SCW-1 to meet operational taskings and reduce war readiness.	The Proposed Action would assist SCW-1 with increasing overall war readiness by decreasing aircraft maintenance downtime.
Provide adequate maintenance facilities.	The No-Action Alternative would not provide adequate facilities for performing maintenance activities. Maintenance would continue to be performed in other OC-ALC hangars and in substandard flight line conditions.	The Proposed Action would provide additional space to perform required maintenance activities, away from potential flight line hazards.
Improve hangar availability for maintenance activities.	The No-Action Alternative would continue to reduce hangar availability for scheduled and unscheduled organizational level maintenance and would reduce hangar availability for EPM and in-service repair.	The Proposed Action would increase hangar space dedicated to depot level support and decrease depot aircraft backlog and downtime.
Minimize maintenance and out of service time.	The No-Action Alternative would increase maintenance downtime resulting in an unacceptable readiness risk.	The Proposed Action would reduce aircraft downtime by decreasing the amount of time aircraft are waiting for maintenance operations.
Reduce costs of depot maintenance activities.	The No-Action Alternative would increase total depot costs by continuing to perform some maintenance at OC-ALC hangars. These costs substantiate an extensive fiscal commitment, straining existing funding.	The Proposed Action would save in excess of \$500K annually throughout the life-cycle of the E-6B program.
Successfully execute the SCW-1 mission within timeframe and on budget.	Continued use of squadron maintenance space would increase maintenance backlog and increase costs, severely jeopardize the ability for SCW-1 to meet operational taskings.	Implementation of the Proposed Action would assist SCW-1 with meeting its mission within timeline and budget constraints.
Comply with all applicable legal and regulatory requirements.	No facility would be constructed under the No-Action Alternative. Implementation of the No-Action alternative would comply with all legal and regulatory requirements.	The Proposed Action would comply with all legal and regulatory requirements.

Table 2-2 provides a summary and comparison of environmental impacts associated with implementation of each project alternative with respect to each of the environmental resources and NEPA topics of interest evaluated. These potential impacts are presented and analyzed in further detail in Chapter 4 of this EA.

**Table 2-2 Summary of Environmental Effects**

Resource	No-Action Alternative	Proposed Action
Noise	No change to the existing airfield noise environment. No noise impacts expected.	Short-term, minor impacts associated with demolition and construction noise would increase, but be minimal given the existing noise environment on the installation from aircraft operations. Once the hangar addition becomes operational, negligible adverse long-term noise effects would be expected from its daily use. However, the noise impact created by the facility and non-aircraft vehicle operations would be insignificant compared to the daily airfield operations and TACAMO aircraft.
Land Use	No change to the baseline land-use environment. No impacts expected.	Negligible to minor adverse effects may occur west of Building 820 as some conversion of land use for additional parking apron space or building foundation work may occur depending on final designs. The Proposed Action would be developed in accordance with the Tinker AFB Area Development Plan and not conflict with any existing or planned on- or off-base land uses.
Air Quality	No change in Tinker AFB emissions or regional air quality. No air quality impacts expected.	There would be a short-term increase in air emissions associated with the demolition and construction activities. These emissions would cease upon completion of the projects, and thus contribute only a small percentage to regional emissions. New emissions sources would include a boiler, diesel fire pump and fugitive emissions from fuel-cell maintenance activities. The existing Tinker AFB Title V air operating permit would be modified to include the new emission sources. The Proposed Action would occur in an attainment area, not be subject to a conformity analysis, and not expose the public or operational personnel to excessive levels of air emissions.
Water Resources	No change from baseline conditions.	There would be a potential for short-term increases in the sediment loading of surface water as a result of demolition and construction activities. These increases would be managed through implementation of a SWP3 along with the incorporation of best management practices (BMPs) for sediment control during construction. There would be no impacts to the quality or quantity of groundwater at Tinker AFB or the surrounding area. There would be no impacts to wetland or floodplains.
Earth Resources	No change from baseline conditions.	There would be short-term, minor soil disturbance as a result of the proposed construction and demolition activities. The soils in the vicinity of the proposed projects have been previously disturbed. Impacts would include increased soil erosion and fugitive dust emissions that would be minimized through the implementation of BMPs.



Resource	No-Action Alternative	Proposed Action
Hazardous Materials and Wastes	No changes to the existing hazardous materials management procedures or hazardous waste activities. No impacts expected.	Contractors would oversee the management of asbestos-containing material, lead-based paint, and/or hazardous materials and waste found or generated during demolition and construction activities. The Proposed Action would require the management of ACM, LBP, and movement of hazardous materials and wastes. Management of these materials and waste streams would occur under the existing Tinker AFB, HAZMINCIN and contractor management programs, and not result in adverse effects. The potential for the presence and management of pesticide impacted soils beneath existing facilities would also not result in adverse effects.
Occupational Health and Safety	No changes to the existing baseline conditions. Reduced hangar availability forces maintenance activities to be performed in outdoor flight line areas in sub-standard conditions. Increased safety hazards resulting from maintenance personnel being exposed to outdoor elements would continue to exist.	There would be short-term, minor adverse effects to safety due to the short-term demolition and construction activities. Construction contractors would be required to establish and maintain safety programs consistent with Air Force safety guidelines as contained in AFI 91-202 <i>US Air Force Mishap Prevention Program</i> and relevant Standard Operating Procedures (SOPs) and that would provide protection to their workers and limit the exposure of base personnel to construction hazards. There would be positive long-term impacts to safety as increased space for maintenance activities and improvements to the overall work environment would be expected to translate into fewer occupational mishaps. Relocation of maintenance activities from existing outdoor flight line areas would be expected to reduce occupational and operational hazards, thereby creating a safer work environment for maintenance personnel.
Sustainability Objectives and Targets	No impacts expected.	Sustainable objectives would be incorporated into the design, construction, and operation of the proposed hangar bay facility; therefore, positive impacts to long-term sustainability objectives would result.
Infrastructure, Utilities and Energy Systems	No change to the existing water supply, wastewater, solid waste, transportation infrastructure, or electrical/natural gas distribution systems. No impacts expected.	There would be a minor, short-term increase in solid waste generation, local traffic near TACAMO facilities, and potable water consumption associated with the demolition and construction activities. There are expected to be negligible operational impacts to wastewater systems, solid waste generation, transportation and parking. However, there would be no long-term impacts to potable water consumption, electrical power systems, or natural gas distribution systems for the installation.

## 2.6 IDENTIFICATION OF THE PREFERRED ALTERNATIVE

Based on the analysis of potential impacts, as documented in Chapter 4, the Proposed Action is identified as the Preferred Alternative.

Under this alternative, sufficient space and increased hangar availability would be provided to meet EPM requirements and provide timely in-service repair of E-6B aircraft. In addition, hangar space dedicated to depot support would reduce depot aircraft backlog and downtime, helping to assure continued, uninterrupted operations of the E-6B fleet. Sufficient hangar space would provide maintenance personnel a location to perform required maintenance activities



indoors instead of in potential sub-standard flight line conditions and provide an additional docking location during inclement weather conditions.

Each of the benefits noted above would assist SCW-1 and E-6B in meeting its mission for providing survivable, endurable, reliable airborne command, control and communications in support of USSTRATCOM. The Preferred Alternative would therefore meet the project's stated need and purpose.

## 2.7 MITIGATION MEASURES

Table 2-3 presents mitigation measures and best management practices anticipated for impacts incurred under the Preferred Alternative.

**Table 2-3 Summary of Mitigation and Best Management Practices**

Resource	Mitigation and BMPs
Noise	No mitigation measures would be necessary. Adherence to standard Air Force and Navy Occupational Safety and Health regulations would minimize the risk of hearing loss to construction workers. These regulations require hearing protection along with other personal protective equipment and safety training. BMPs include limiting the operation of extremely noisy equipment (e.g., pavement cutters or jackhammers) to normal work hours. Other practices that could reduce construction-related noises and disturbances include properly operating and maintaining equipment (e.g., utilizing mufflers and other sound suppression equipment), directing equipment to use less noise-sensitive routes, constructing temporary sound barriers to reduce noise propagation, and shutting off or idling machinery between work periods. Safety training would be implemented to ensure all construction personnel are aware of these practices.
Land Use	No mitigation measures would be necessary.
Air Quality	No mitigation measures would be necessary. BMPs to minimize fugitive dust emissions would include construction sequencing, watering down areas to control dust, use of dust suppressants, minimizing the amount of time that ground is disturbed, covering dirt and aggregate trucks and/or piles, prevention of dirt carryover to paved roads, and the use of erosion barriers and wind breaks.
Water Resources	No mitigation measures would be necessary. BMPs would be installed to prevent soil disturbance, capture and contain loose soil, and slow the movement of storm water during heavy rains. A SWPPP would be implemented. During construction, there is a potential for the excavations to interact with contaminated groundwater. Care would be taken to ensure that groundwater resources and human health are protected from potential contaminants or potentially contaminated groundwater as per applicable health and safety guidance.
Earth Resources	No mitigation measures would be necessary. The proposed project would include site-specific sediment and erosion control plans that detail BMPs to prevent soil disturbance. Fugitive dust from construction activities would be minimized by watering and soil stockpiling, thereby reducing the total amount of soil exposed to wind. If during construction, contact is made with contaminated soils, care would be taken to ensure that human health is protected from the potentially contaminated soil.
Hazardous Materials and Wastes	No mitigation measures would be necessary. The facility would comply with all Tinker AFB and TACAMO HAZMINCIN hazardous materials and hazardous waste management plans. If it is necessary to remove soils for off-site disposal, a limited number of random samples would be collected to assess the presence or absence of pesticides in soil, and to properly categorize the soil for hazardous constituents per applicable state and federal regulations for disposal off-site. In addition, contractors

	would be required to develop and maintain a site-specific Spill Control Plan prior to the start of construction, and all construction personnel would be briefed on the implementation and responsibilities of this plan.
Occupational Health and Safety	No mitigation measures would be necessary. Construction contractors would be required to establish and maintain safety programs that would provide protection to their workers and limit the exposure of base personnel to construction hazards. All demolition and construction activities would adhere to Ground and Flight Safety requirements as contained in AFI 91-202 <i>The US Air Force Mishap Prevention Program</i> . Detailed SOPs have been established to fulfill health and safety requirements. Personnel involved with maintenance equipment would be instructed on the proper use of the equipment and necessary personal protective equipment prior to its use.
Sustainability Objectives and Targets	No mitigation measures would be necessary. BMPs include siting of the hangar bay as an addition to an existing hangar instead of as a stand-alone hangar, using in-fill development of unused space at TACAMO, following Tinker AFB area development plans for the construction of interrelated facilities in proximity to each other, and properly siting the hangar bay facility to avoid known environmental constraints.
Infrastructure, Utilities and Energy Systems	No mitigation measures or BMPs would be necessary.



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## CHAPTER 3 AFFECTED ENVIRONMENT

### 3.1 INTRODUCTION

This chapter describes the current conditions of the environmental resources, either manmade or natural, that would be affected by implementation of the Preferred or No-Action Alternatives. For each environmental resource area, the baseline conditions presented in this chapter are described to the level of detail necessary to support analysis of potential impacts of the Preferred and No-Action Alternatives as presented in Chapter 4, Environmental Consequences. Where appropriate and definable, a specific Region of Influence (ROI) is indicated for a given resource area.

### 3.2 DESCRIPTION OF THE AFFECTED ENVIRONMENT

#### 3.2.1 Noise

##### 3.2.1.1 Definition of Resource

Noise is generally defined as unwanted sound. Sound becomes unwanted when it interferes with normal activities such as speech, concentration, or sleep. Under certain conditions, noise may cause hearing loss, interfere with human activities, and in various ways, affect the health and well-being of a community.

Noise associated with military installations is a factor in land use planning both on- and off-base. In particular, noise associated with airfield and airspace operations can be of concern to on-base personnel and surrounding communities. Noise also emanates from vehicular traffic associated with new facilities and from project sites during construction. Ambient noise (the existing background noise environment) can be generated by a number of noise sources, including mobile sources such as airplanes, automobiles, trucks, and trains; and stationary sources such as construction sites, machinery, or industrial operations.

Sound is measured with instruments that record instantaneous sound levels in decibels (dB). The dB unit is a logarithmic ratio of the increase in atmospheric pressure that a sound event causes, compared to a defined reference pressure. When using decibels to depict airborne sound pressure levels (SPL), zero dB is the threshold of human hearing and exponential increases occur every 10 dB. As such, an event that generates 60 dB of sound is ten times louder than one that generates 50 dB. In addition to quantifying the pressure of a noise event, the quality of noise is described in terms of frequency or more commonly, "pitch." While the human ear can detect sound over a very wide spectrum of frequencies, it is particularly well adapted to perceiving sounds in the mid-range frequencies.

A-weighted sound level measurements (dBA) are used to characterize sound levels that can be sensed by the human ear. The A-weighted noise level has been found to correlate well with people's judgments of the loudness of different sounds and has been used for many years as a measure of community noise. Humans can detect changes in sound levels of approximately 3



dBA. Changes of less than 3 dBA are generally not discernable by humans with normal hearing sensitivity. All sound levels referenced in this EA are A-weighted.

Human response to sound is not only a function of the maximum SPL, but also the duration and temporal variation. As such, cumulative measures of sound exposure over time have been developed. The "Day-Night Average Sound Pressure Level" (DNL) was developed to evaluate noise exposure over a 24-hour period. The DNL metric applies a 10-dB "penalty" to the nighttime hourly SPL from 10pm to 7am and then averages the total acoustic energy over a 24-hour period. The nighttime 10 dB weighting is used to account for the increased sensitivity to nighttime noise that would be expected in a community.

Federal and local governments have established noise guidelines and regulations for the purpose of protecting citizens from potential hearing damage and from various other adverse physiological, psychological, and social effects associated with noise. Occupational safety and health regulations are a primary method of enforcing these guidelines and standards.

#### **3.2.1.2 Affected Environment**

The ROI for the Preferred Alternative is defined as Tinker AFB and the immediate surrounding communities of Del City and Midwest City, Oklahoma. The major source of noise on Tinker AFB is attributable to aircraft operations on the installation. These operations can include in-flight arrivals, departures, and pattern flight operations, as well as pre-flight and maintenance run-up operations on the airfield. Computer models are used to develop day-night average sound level (DNL) noise contours for land use planning purposes based on information about these operations, including:

- Type(s) of aircraft
- Types of operations (e.g., arrival, departure, pattern)
- Number of operations per day
- Time of operation
- Flight track(s)
- Aircraft power settings, speeds, and altitudes
- Number, duration, and location of pre-flight and maintenance run-ups
- Environmental data (humidity and temperature)
- Topographical features of the area

Noise contours are usually calculated in 5 dBA DNL intervals including DNLs of 65, 70, and 75 dBA. In general, no land use restrictions are required in noise zones below the 65 dBA DNL. Areas located within a DNL range of 65-75 dBA are subject to high noise levels, and noise sensitive land uses (e.g. residential) are not recommended unless sound attenuation or noise level

reduction (e.g., sound resistant windows, noise insulation) is included in the use. Areas at or above the DNL contour of 75 dBA are subject to severe noise exposure, and noise sensitive uses are usually incompatible and strongly discouraged. The majority of the TACAMO area of Tinker AFB including Building 820 is located within the DNL 70 dBA noise contour. Open space areas located west of Building 820 are within the DNL 65 dBA noise contour (USAF 2006a).

Interior noise levels are typically lower than exterior levels due to the attenuation of the sound energy by the structure, with the amount of noise level reduction provided by a building depending on the type of construction and the number of openings such as doors, windows, chimneys, and plumbing vents. The approximate reduction in interior noise is 15 dBA when windows are open and 25 dBA with windows closed (USEPA 1974).

#### **3.2.1.3 Noise from Demolition and Construction Activities**

Instances of increased noise may occur during demolition and construction activities. Measures that serve to limit or mitigate noise during construction and demolition include limiting activity at project sites to daytime hours; limiting truck traffic ingress/egress at access gates to daytime hours; promoting awareness that producing prominent discrete tones and periodic noises (e.g., jack hammer operations) should be avoided as much as possible; requiring that work crews seek pre-approval for any weekend activities or activities outside of normal daytime work hours; and using mufflers and other noise control devices on construction equipment to the maximum extent possible.

High levels of noise can also affect the health of construction/demolition workers. Application of federal Occupational Health and Safety Administration (OSHA) standards for occupational noise exposure associated with construction (29 CFR 1926.52) is required.

#### **3.2.1.4 Noise from Facility and Vehicle Operations**

Once facilities are constructed, noise can be generated from facility operations and any transportation vehicles associated with these facilities. Aside from negligible heating, ventilation, and air conditioning (HVAC) related noise, the majority of facilities on military installations do not generate high levels of noise themselves. Some industrial related facilities may produce noise, and during power outages, operation of emergency generators could cause minor, short-term noise impacts. Other sources of noise include vehicles associated with a facility, including organizational vehicles used for training and operations, government and private delivery vehicles, commuter shuttles or buses, and personal vehicles used for commuting purposes. On military installations, the noise impact created by facility and vehicle operations is rarely considered significant, especially when compared to that generated by military aircraft operations.

### **3.2.2 Land Use**

#### **3.2.2.1 Definition of Resource**

Land use describes the activities that take place in a particular area and generally refers to human modification of land, often for residential or economic purposes. It also refers to use of land for preservation or protection of natural resources. It is important as a means to determine if there is



sufficient area for proposed activities and identify any potential conflicts with local land use plans. This section describes the general land use conditions within the affected environment of the ROI that could potentially be affected by the Preferred Alternative. The ROI for land use is defined as Tinker AFB and the surrounding communities of Del City and Midwest City.

#### **3.2.2.2 Installation Land Use**

As a large DoD facility, Tinker AFB is comprised of approximately 732 buildings located throughout an estimated 5,400 acres. Tinker AFB has a two-runway airfield capable of supporting the missions of the base and the operations at the OC-ALC. The installation employs approximately 27,000 military and civilian personnel, and provides mission and military community support services including administrative facilities; aircraft operations and maintenance facilities; temporary lodging; a campground; an off-base elementary school; three childcare centers; a clinic; and a commissary, exchange, mall and shoppette.

Existing land use patterns on Tinker AFB are a result of the installation's development since World War II. Facility development and supporting infrastructure have evolved over time as missions and requirements have changed or expanded. Tinker AFB's runways separate the installation into several distinct functional land use areas. The installation's unique and multiple missions have further contributed to the development of these areas into distinct planning districts. The installation has maintained adequate functional relationships with relatively few land use conflicts. Current land uses on Tinker AFB include Administrative, Aircraft Operations and Maintenance, Airfield, Community Commercial, Community Service, Housing, Industrial, Medical, Open Space, Outdoor Recreation and Water.

Building 820 and the proposed maintenance bay hangar addition are located in the south-central part of the main installation property and west of the main runway complex (**Figure 1-2**). The predominant land use within the TACAMO area associated with the Proposed Action is Airfield (Runway, Taxiway, Apron) and Aircraft Operations and Maintenance. There is also limited Open Space located to the west of Building 820.

#### **3.2.2.3 Surrounding Land Use**

The majority of the land surrounding Tinker AFB can be characterized as urban developed, moderate-density, with areas of undeveloped land south of the installation. Midwest City, located directly north of the installation, is predominantly residential, with considerable amounts of commercial land uses located along major road corridors. These commercial corridors are primarily 15th Street, 29th Street, Interstate 40, Air Depot Boulevard, and Midwest Boulevard. A significant amount of public and institutional uses are scattered throughout Midwest City. These include City Hall, a public library, post office, several schools, and the John Conrad Regional Golf Course (USAF 2006a).

Del City is located northwest of the installation and is a mostly developed, moderate-density, mixed-use community. The predominant land use is residential, with commercial corridors existing along 15th Street, 29th Street, and Interstate 40. Only limited amounts of land remain undeveloped in Del City. Limited areas of industrial uses exist in Del City between Interstate 40 and the Canadian River (USAF 2006a).

Most of the undeveloped land in the vicinity of Tinker AFB lies within Oklahoma City. Interstate 240 runs east to west just south of the installation. A railroad yard, the Tinker Aerospace Complex (a former General Motors assembly plant), and other industrial uses are located between the main Tinker AFB installation and Interstate 240, with sporadic areas of open space intermixed throughout the corridor. Residential subdivisions are being developed southwest of Tinker AFB, south of Interstate 240. Lake Stanley Draper occupies nearly 3,000 acres south of Interstate 240. The lake is in an Environmental Conservation District owned by the Oklahoma City Water Trust and is surrounded by a significant amount of undeveloped land. Outside the eastern boundary of Tinker AFB, minimal commercial development exists along Douglas Boulevard, with sporadic residential development further east (USAF 2006a).

### **3.2.3 Air Quality**

#### **3.2.3.1 Air Quality Standards and Regulations**

The U.S. EPA defines ambient air in 40 CFR Part 50 as “that portion of the atmosphere, external to buildings, to which the general public has access”. In compliance with the 1970 Clean Air Act (CAA) and the 1977 and 1990 Clean Air Act Amendments (CAAA), the U.S. EPA has promulgated and adopted National Ambient Air Quality Standards (NAAQS). To date, the U.S. EPA has issued NAAQS for six criteria pollutants: carbon monoxide (CO), sulfur dioxide (SO<sub>2</sub>), particles with a diameter less than or equal to 10 micrometers (PM<sub>10</sub>) and particles with a diameter less than or equal to 2.5 micrometers (PM<sub>2.5</sub>), ozone (O<sub>3</sub>), nitrogen dioxide (NO<sub>2</sub>), and lead (Pb). The NAAQS define allowable concentrations of pollutants that may be reached but not exceeded during a given period of time. The purpose of these standards is to primarily protect human health and secondarily, human welfare with a reasonable margin of safety. The CAAA also set emission limits for certain air pollutants from specific sources, set new source performance standards based on best demonstrated control technologies, and established national emission standards for hazardous air pollutants.

The CAAA specifies two sets of standards, primary and secondary, for each regulated air pollutant. Primary standards define levels of air quality necessary to protect public health, including the health of sensitive populations such as people with asthma, children, and the elderly. Secondary standards define levels of air quality necessary to protect against decreased visibility and damage to animals, crops, vegetation, and buildings. Although O<sub>3</sub> is considered a criteria pollutant and is measurable in the atmosphere, it is often not considered as a pollutant when reporting emissions from specific sources, because O<sub>3</sub> is not typically emitted directly from most emissions sources. O<sub>3</sub> is formed in the atmosphere from its precursors – nitrogen oxides (NO<sub>x</sub>) and volatile organic compounds (VOCs) – that are directly emitted from various sources. Thus, emissions of NO<sub>x</sub> and VOCs are commonly reported instead of O<sub>3</sub>. Table 3-1 shows the NAAQS for each criteria pollutant, expressed in terms of parts per million (ppm) by volume or micrograms per cubic meter of air (µg/m<sup>3</sup>).

The USEPA classifies air quality according to whether a region meets federal primary and secondary air quality standards. A region may be classified as attainment, non-attainment, or unclassifiable with regard to the air quality standards for each of the criteria pollutants. “Attainment” describes a condition in which standards for one or more of the six pollutants are being met in an area. The area is considered an attainment area for only those criteria pollutants



for which the NAAQS are being met. "Non-attainment" describes a condition in which standards for one or more of the six pollutants are not being met in an area. "Unclassifiable" indicates that air quality in the area cannot be classified and the area is treated as attainment. An area may have all three classifications for different criteria pollutants.

The CAAA requires federal actions to conform to any applicable state implementation plan (SIP). A SIP must be developed to achieve the NAAQS in non-attainment areas (i.e., areas not currently attaining the NAAQS for any pollutant) or to maintain attainment of the NAAQS in maintenance areas (i.e., areas that were non-attainment areas but are currently attaining that NAAQS). General conformity refers to federal actions other than those conducted according to specified transportation plans (which are subject to the Transportation Conformity Rule). Therefore, the General Conformity rule applies only to non-transportation actions in non-attainment or maintenance areas. For such actions, a determination of conformity with the SIP must be performed if the emissions resulting from the action exceed applicability thresholds specified for each pollutant and classification of non-attainment. Both direct emissions from the action itself and indirect emissions that may occur at a different time or place but are an anticipated consequence of the action must be considered. The Transportation Conformity Rule does not apply to this project.

To regulate the emission levels resulting from a project, federal actions located in non-attainment areas are required to demonstrate compliance with the general conformity guidelines established in 40 CFR Part 93 Determining Conformity of Federal Actions to State or Federal Implementation Plans (the Rule). Section 93.153 of the Rule sets the applicability requirements for projects subject to the Rule through the establishment of *de minimis* levels for annual criteria pollutant emissions. These *de minimis* levels are set according to criteria pollutant non-attainment area designations. Projects below the *de minimis* levels are not subject to the Rule. Those at or above the levels are required to perform a conformity analysis as established in the Rule. The *de minimis* levels apply to direct and indirect sources of emissions that can occur during the construction and operational phases of the action.

**Table 3-1 National Ambient Air Quality Standards for Criteria Pollutants**

Pollutant	Averaging Period	Standard	Primary NAAQS	Secondary NAAQS
Carbon Monoxide	1-hr	Not to be exceeded more than once per calendar year	35 ppm	None
	8-hr	Not to be exceeded more than once per calendar year	9 ppm	None
Lead	Rolling 3-Mo Average	Not to be at or above this level	0.15 µg/m <sup>3</sup>	0.15 µg/m <sup>3</sup>
	Quarter	Not to be at or above this level	1.5 µg/m <sup>3</sup>	1.5 µg/m <sup>3</sup>
Nitrogen Dioxide	1-hr	The three-year average of the 98th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed this level	0.100 ppm	None
	Annual	Not to be at or above this level	0.053 ppm	.053 ppm
Particulate Matter (PM <sub>10</sub> )	24-hr	Not to be exceeded more than once per year on average over 3 years	150 µg/m <sup>3</sup>	150 µg/m <sup>3</sup>
Particulate Matter (PM <sub>2.5</sub> )	24-hr	The three-year average of the 98th percentile of 24-hour concentrations at each population-oriented monitor within an area must not exceed this level	35 µg/m <sup>3</sup>	35 µg/m <sup>3</sup>
	Annual	The three-year average of the weighted annual mean concentrations from single or multiple community-oriented monitors must not exceed this level	15.0 µg/m <sup>3</sup>	15.0 µg/m <sup>3</sup>
Ozone	8-hr (2008 std)	The three-year average of the fourth-highest daily maximum 8-hour average at each monitor within an area must not exceed this level	0.075 ppm	0.075 ppm
	8-hr (1997 std)	The three-year average of the fourth-highest daily maximum 8-hour average at each monitor within an area must not exceed this level	0.08 ppm	0.08 ppm
	1-hr	Not to be exceeded more than once per calendar year	0.12 ppm	0.12 ppm
Sulfur Dioxide	1-hr	The three-year average of the 99th percentile of the daily maximum 1-hour average at each monitor within an area must not exceed this level	.075 ppm	None
	3-hr	Not to be exceeded more than once per year	None	0.5 ppm
	24-hr	Not to be exceeded more than once per year	0.14 ppm	None
	Annual	Not to be at or above this level	0.03 ppm	None

Source: EPA, 2011a

The applicability thresholds are 100 tons per year (tpy) for criteria pollutants, except for those shown in Table 3-2.



**Table 3-2 General Conformity Applicability Thresholds**

NAAQS Pollutant	Type of Non-attainment or Maintenance Area	Applicability Threshold (tpy)
Ozone	Extreme NAAs	10 tpy VOC or NO <sub>x</sub>
	Severe NAAs	25 tpy VOC or NO <sub>x</sub>
	Serious NAAs	50 tpy VOC or NO <sub>x</sub>
	Marginal or moderate NAAs inside an ozone transport region	50 tpy VOC (100 tpy NO <sub>x</sub> )
	Maintenance areas inside an ozone transport region	50 tpy VOC (100 tpy NO <sub>x</sub> )
Carbon Monoxide	All NAAs	100 tpy
Sulfur Dioxide	All	100 tpy
Nitrogen Dioxide	All	100 tpy
PM <sub>10</sub>	Serious NAAs	70 tpy PM <sub>10</sub>
	Moderate NAAs	100 tpy PM <sub>10</sub>
	All Maintenance areas	100 tpy
Lead	All NAAs	25 tpy Pb
	All Maintenance areas	25 tpy Pb

Source: EPA, 2003a, 2003b

Notes:

NAA = Non-attainment area

NAAQS = National Ambient Air Quality Standard

NO<sub>x</sub> = nitrogen oxide

Pb = lead

PM<sub>10</sub> = particulate matter equal or less than 10 micrometers in diameter.

tpy = tons per year

VOC = volatile organic compound

A number of actions are exempted from the requirements of general conformity, including the following:

- Actions that do not have emissions increases.
- Actions with an emissions increase that is clearly *de minimis* (21 actions are listed; primarily actions that are administrative, legal, or routine in nature including routine movement of mobile assets, material and personnel as well as routine maintenance and repair).
- Actions that are not reasonably foreseeable or that respond to natural disasters or emergencies. Actions that have been approved under specified federal programs.
- If an action triggers the applicability thresholds and is not exempt from the requirements, the federal agency must demonstrate and document that the direct and indirect emissions would conform to the SIP. In particular, it must be demonstrated that the Preferred Alternative will not:
  - Cause or contribute to a new violation of an NAAQS.
  - Interfere with the SIP.
  - Increase the frequency or severity of existing violations.
  - Delay attainment or any required progress toward that attainment.

The determination generally involves emission estimation and sometimes air quality modeling for the entire non-attainment or maintenance area (usually a multi-county area). If the initial conformity determination demonstrates that the Preferred Alternative does not conform to the SIP, measures must be established and committed to mitigate the projected air quality impacts.

A timeline for implementation of these measures may be specified; however, enforcement measures must also be established to ensure that they are implemented as required.

Air quality management at Air Force installations is established in AFI 32-7040, Air Quality Compliance. AFI 32-7040 requires installations to achieve and maintain compliance with all applicable federal, state, and local standards. Air quality compliance involves prevention, control, abatement, documentation, and reporting of air pollution from stationary sources and mobile sources and general conformity planning for proposed actions located in non-attainment or maintenance areas. Maintaining compliance with air quality regulations may require reduction or elimination of pollutant emissions from existing sources and control of new pollution sources.

### **3.2.3.2 Regional Air Quality**

Tinker AFB lies entirely within the boundaries of Oklahoma County, located in the central portion of Oklahoma. The main portion of Tinker AFB is located in the southwest portion of Oklahoma County and is located within the city limits of Oklahoma City. The installation is centered 10 miles southeast of downtown Oklahoma City. Incorporated areas immediately surrounding Tinker AFB include Midwest City to the north and Del City to the northwest.

Tinker AFB is located within the Central Oklahoma Intrastate Air Quality Control Region, which includes the following counties: Canadian County, Cleveland County, Grady County, Lincoln County, Logan County, Kingfisher County, McClain County, Oklahoma County, and Pottawatomie County. The project area and all of Oklahoma is in attainment of all criteria pollutants. Therefore, Tinker AFB is not subject to the General Conformity regulations (40 CFR Parts 6, 51 and 93).

Oklahoma has a single Prevention of Significant Deterioration (PSD) Class I area; Wichita Mountains National Wildlife Refuge in Comanche County near Fort Sill Military Reservation. This area is located approximately 80 miles southwest of Tinker AFB.

### **3.2.3.3 Tinker AFB Air Quality**

Since air quality attainment determinations are made at the county level, the ROI for air quality is Oklahoma County. An accurate emissions inventory is needed for assessing the potential contribution of a source or group of sources to regional air quality. An emissions inventory is an estimate of the actual and potential pollutant emissions generated by a source or sources over a period of time, normally a calendar year. The inventory accounts for permitted sources that are required to report annual emissions to the EPA. Oklahoma County emissions include emissions from point and area sources. Of over 1,500 identified sources of air pollutants at Tinker AFB, approximately 500 sources have been identified as significant. Source types include boilers, generators, surface coating operation, paint booths, storage tanks, and fueling operations, amongst others. Mobile and biogenic emission sources are not included in the emission totals for Tinker AFB. Table 3-3 compares the 2008 actual emissions and the potential emissions for Tinker AFB and the 2002 Oklahoma County point and area source total emissions. As shown in Table 3-3, Tinker AFB contributes a small amount to Oklahoma County point and area source emissions totals.



**Table 3-3 Oklahoma County Emissions and Tinker AFB Actual and Potential Emissions**

	Annual Emissions (tpy)					
	CO	VOC	NO <sub>x</sub>	SO <sub>2</sub>	PM <sub>10</sub>	PM <sub>2.5</sub>
2002 Oklahoma County Emission Inventory <sup>a</sup>	1,657	1,656	3,547	256	438	270
2008 Tinker AFB Actual Emissions <sup>b,d</sup>	140.5	239.8	200.5	14.0	15.4	15.4
Tinker AFB Potential Emissions <sup>c,e</sup>	868	1,170	1,256	80.0	59.0	59.0
Percent of Regional Emissions <sup>f</sup>	8.5	14.5	5.6	5.5	3.5	5.7

Source, USEPA, 2011b and ODEQ, 2010

Notes:

CO = carbon monoxide

NO<sub>x</sub> = nitrogen oxides

PM<sub>2.5</sub> = particulate matter equal or less than 2.5 micrometers in diameter.

PM<sub>10</sub> = particulate matter equal or less than 10 micrometers in diameter.

SO<sub>2</sub> = sulfur dioxide

tpy = tons per year

VOC = volatile organic compounds

<sup>a</sup> Includes emissions from point and area sources. Source: <http://www.epa.gov/air/data/> (U.S. Environmental Protection Agency AirData).

<sup>b</sup> 2008 actual emissions were obtained from the Tinker AFB Title V Summary of Annual Emissions Inventories. Emissions from mobile and biogenic sources not included.

<sup>c</sup> Potential emissions based upon sources with permit limits. Emissions from mobile and biogenic sources not included. PM<sub>2.5</sub> emissions assumed to be the same as PM<sub>10</sub>.

<sup>d</sup> Actual emissions are the air pollutant emissions that result from the actual operation and material usage quantities during a one-year period (i.e., typically a calendar year).

<sup>e</sup> Potential emissions are those emissions resulting from the operation of an emission unit under maximum potential conditions, unless operation is restricted by a regulatory condition (e.g. fuel use limit in permit). For example, calculating emissions from a boiler by taking into account its maximum rated heat input capacity and operation 24 hours per day, 7 days per week, 52 weeks per year would result in a potential emission calculation.

<sup>f</sup> Compares 2008 Tinker AFB actual emissions to Oklahoma County 2002 emissions.

### **3.2.4 Water Resources**

#### **3.2.4.1 Surface Water**

Tinker AFB is located within the Arkansas River Watershed. Streams within this watershed flow into the Mississippi River, and then into the Gulf of Mexico. The total Arkansas Watershed drainage area is 195,000 square miles and has the Canadian River, Poteau River, Verdigris River, and Cimarron River as its major tributaries within Oklahoma (USGS 1995).

Tinker AFB is comprised of three drainage areas; Crutch Creek, Elm Creek, and Hog Creek. The Crutch Creek drainage area consists of two additional water bodies, Kulhman Creek and Solider Creek. Sixteen man-made retention ponds and two detention basins located within the Crutch Creek drainage area are utilized to control Tinker AFB's storm water runoff. Crutch Creek receives storm water runoff and natural water flow from the northern and western portions of Tinker AFB. Crutch Creek flows to the north and discharges into the North Canadian River; the North Canadian River then discharges into the Arkansas River. Elm Creek drainage area receives storm water runoff from the southernmost portion of Tinker AFB. Hog Creek drainage area receives storm water runoff from the far southeast portion of Tinker AFB. Both Elm and

Hog Creek discharge into the Little River (USAF 2007b). The Little River flows into the Canadian River and then into the Arkansas River.

A detailed description of the Tinker AFB wastewater flow is presented in Section 3.2.2.2.

Storm water runoff from the northern side of the hangar flows northward by overland flow. Runoff from the southern side of the hangar and from Building 825 flows to storm drains on the southern side of the hangar. Runoff from the facility is currently discharged to the creek via a forty-two inch pipe to the East Tributary of Upper Crutcho Creek.

#### **3.2.4.2 Groundwater**

Tinker AFB is located over the recharge zone of the Central Oklahoma Aquifer. The Central Oklahoma Aquifer System occupies an approximately 3,000 square mile area in central Oklahoma. The groundwater of the Central Oklahoma Aquifer flows south and southwest across the southern half of Tinker AFB and west to northwest across the northern half (USAF 2007b). The groundwater is discharged to the surface by evapotranspiration, spring discharge, or to streams as base flow. The aquifer is generally recharged by direct precipitation (USGS 1995). The productive formations associated with this aquifer are the Permian Garber Sandstone and Wellington Formations. These formations are often collectively referred to as the "Garber-Wellington" Aquifer.

There are four principal hydrostratigraphic or water-bearing zones (WBZs). These WBZs are designated as the upper saturated zone (USZ), lower saturated zone (LSZ), lower-lower saturated zone (LLSZ) and producing zone (PZ) in the Garber-Wellington Aquifer and the Hennessey water-bearing zone (HWBZ) in the overlying Hennessey Group (TAFB 2006). The HWBZ is only present when the Hennessey Group, overlaying the aquifer, is thick enough to support saturation.

Groundwater flows between the HWBZ and the USZ along the south side of Crutcho Creek and from the USZ to the LSZ along the eastern edge of the USZ. Within the HWBZ the depth to groundwater varies, from the surface to 30 feet below surface (bgs). The HWBZ presents seasonal springs on Tinker AFB. The USZ and LSZ are located beneath most of Tinker AFB. The USZ is eroded or thins near the eastern boundary of Tinker AFB while the LSZ extends to the east of the base. The depth to groundwater within the USZ ranges from near the surface at the northeastern section of Tinker AFB to 60 feet bgs. Under the eastern and southern portions of Tinker AFB, groundwater flows to the west or southwest with the USZ. The USZ is generally referred to as a confined aquifer, but in areas where the HWBZ is not present, the aquifer is unconfined to semi-confined. The LSZ groundwater flows either to the southwest or west-northwest and is found 30 feet to 110 feet bgs. The groundwater flow within the LSZ changes direction to the northwest underneath the northwest portion of Tinker AFB. The LSZ extends to a depth of roughly 200 feet. The PZ has a depth to groundwater of 200 to 280 feet bgs and extends to a depth of over 800 feet bgs under Tinker AFB, below which it becomes salty. The flow of groundwater within this zone is influenced by production from well withdrawal, but naturally flows to the southwest under the base. The PZ is the zone that is utilized for drinking water by Tinker AFB and Oklahoma City (USAF 2002).



Groundwater monitoring wells are located on and around Tinker AFB have generally been installed in clusters or groups that intercept a prescribed portion of the four principal hydrostratigraphic or water-bearing zones (WBZs) as described above.

The wells form the basis of the ongoing ground water monitoring program on the base. These groups are arranged into Ground Water Monitoring Units (GWMU). The Preferred Alternative does not fall within a management unit but is rather located at the transition of the south west and east GWMU. The southwest groundwater management unit encompasses four landfills (1942-1968) with several specific-use sludge disposal pits, a fire training area (1950-1970), a sewage impoundment (1954-1970), and a radioactive waste disposal site (1951-1960s). Wastes include general refuse, industrial and sanitary wastes, and low level radioactive waste. Groundwater contaminants are principally solvents and metals. Groundwater over a large area under this management unit is contaminated. The principal pathway is groundwater to down gradient private water supply wells, with a lower potential to nearby streams. Wells are within 200 feet of the plume. Most homes have private wells that intersect the same hydrogeologic units as the contaminated units on base. Potential for human exposure to contaminated groundwater in this area therefore exists because Tinker AFB and the surrounding communities of Midwest City and Del City derive their water supplies from the Garber- Wellington Aquifer, and surface water sources (Tinker 2004).

The east groundwater management unit encompasses a waste pit (1947-1958), fuel sites, a landfill (1968-1970), truck maintenance facility (since 1957), and a fire training area (1962-1966). The waste pit received unspecified waste from plating and maintenance facilities. Groundwater contaminants include solvents and metals. The primary pathway is groundwater to base drinking water supply wells. Potential for human exposure to contaminated groundwater in this area exists because Tinker AFB and the surrounding communities of Midwest City and Del City derive their water supplies from the Garber-Wellington Aquifer and surface water sources (Tinker 2004).

According to the Basewide Environmental Groundwater Sampling and Water Level Measurements, a number of monitoring wells are located in the proximity of the proposed project. Well 2-424B is located approximately 850 feet to the north east. Well 2-544B is located approximately 300 feet to the north and well 2-147 is located approximately 650 feet to the south of the Preferred Alternative. Criteria exceedences for Volatile Organic Compounds have been recorded at well 2-424B and 2-147A (Tinker 2006).

Potable water used for drinking and industrial purposes comes from a depth of 200 ft bgs or greater. Water from the Garber-Wellington Aquifer is of sufficient quality to be used for most industrial, agricultural, and domestic purposes. The aquifer system is primarily recharged by percolation of surface water and by rainfall infiltration and Tinker AFB is considered to be in the recharge zone for the Garber-Wellington Aquifer. These 24 wells range from 700 to 850 feet in finished depth, and yield 205 to 250 gallons per minute (gpm), supplying approximately 6.5 million gallons of water per day to the installation. The system is currently operating at about 75 percent of its capacity and is considered to be in good condition (USAF 2007a). One drinking water well, WS-29, is located approximately 1400 feet to the south west of the Preferred Alternative (Tinker 2006).

Tinker AFB also uses the Oklahoma City Stanley Draper water system as a secondary source of water. These connections are typically opened during the summer and during peak demand periods. The water supplied by Oklahoma City is produced at the Lake Stanley Draper Drinking Water Plant, where it is treated to meet Safe Drinking Water Act standards (Tinker TO 2010).

#### **3.2.4.3 Wetlands and Floodplains**

The U.S. Department of Interior's National Wetlands Inventory (NWI) was searched for the presence of wetlands. One potentially jurisdictional wetland was identified 1,750 feet to the north of the Preferred Alternative's footprint.

The Flood Insurance Rate Map for Oklahoma County, Federal Emergency Management Agency, Panel 40109Co320H (December 18, 2009) was also reviewed for the presence of any flood hazard areas inundated by the 100-year flood, and designated floodway areas. No areas were identified within the Preferred Alternative's footprint (Figure 3-4).







### **3.2.5 Earth Resources**

Tinker AFB is located in the Central Redbed Plains section of the Central Lowland Physiographic Province which is characterized by level to gently rolling hills, broad flat plains, and bottomlands bisected by small- to medium-sized water courses.

Oklahoma County is part of the Central Great Plains in the western parts of the county and transitions to the cross-timbers region in the eastern parts of the county. The climate of Oklahoma is continental, as is all of the Great Plains. Warm, moist air moving northward from the Gulf of Mexico often exerts much influence, particularly over the southern and eastern portions of the state, where humidity, cloudiness and precipitation are greater than in western and northern sections. Summers are long and hot. Winters are shorter and less rigorous than those of more northern Plains states. Periods of extreme cold are infrequent, and those lasting more than a few days are rare. Oklahoma County elevations range from about 850 feet above mean sea level (MSL) in the southeastern part to 1,300 feet MSL in the northwestern part. Elevations on the installation range from approximately 1,200 feet MSL (Crutch Creek, northwestern portion of base) to 1,310 feet MSL (southeast portion of the base). The airfield elevation is approximately 1,291 feet MSL (USAF 2007b).

According to the Natural Resources Conservation Service (NRCS) soils within the project area are classified as "urban," which are previously disturbed soils that may be comprised of soil borrow areas and fill material (NRCS, 2011). These soils have been furthered altered by various construction operations and activities. For example, vehicular traffic around construction sites and the historical parking of aircraft on grassy areas have compacted soils within the project area.

### **3.2.6 Hazardous Materials and Waste**

#### **3.2.6.1 Hazardous Materials**

Hazardous materials are substances that, because of their quantity, concentration, or physical, chemical, or infectious characteristics, may present a substantial danger to public health or the environment if released. These typically include reactive materials such as explosives, flammable materials, toxics (such as pesticides), and corrosives (such as battery acid). When improperly stored, transported, or otherwise managed, hazardous materials can significantly affect human health and safety and the environment.

Hazardous materials waste at Tinker AFB are managed in accordance with the DoD Directive 4210.15 (*Hazardous Materials Pollution Prevention*), Air Force Instruction (AFI) 32-7086 (*Hazardous Materials Management*), Tinker Supplement to AFI 32-7086 (*Hazardous Materials Management*), Tinker TI 32-7004 (*Hazardous Waste Management*), AFI 32-4002 (*Hazardous Materials Emergency Planning and Response Program*), and AFI 32-7080 (*Pollution Prevention Program*), as well as other directives which incorporate all requirements of federal regulations, DoD Directives, and AFIs for the reduction of hazardous material uses and purchases. Tinker AFB has a comprehensive *Spill Prevention and Emergency Response Plan for Hazardous and Extremely Hazardous Materials and Spill Prevention Control and Countermeasures Plan (OC-ALC Plan 19-2)*, and *Management Action Plan for the Environmental Restoration Program*.



Hazardous material use and management at Tinker AFB are regulated under the Toxic Substance Control Act (TSCA), OSHA, Emergency Planning and Community Right-to-Know Act, and Air Force Occupational Safety and Health Standards. The regulations require personnel using hazardous materials to be trained in the application, management, handling, and storage of material; to know the location of material safety data sheets (MSDSs) for all hazardous materials that they are using; and to wear the correct personal protective equipment (PPE) required for materials that are being used. Tinker AFB has a Hazardous Materials Management Program (HMMP) in place that documents procurement, use, and disposal of hazardous materials located on Tinker AFB and all associated property. The HMMP also stores training, exposure, inventory, PPE requirements, waste management, and a database of all MSDSs used on-base (USAF 2007a).

Tinker AFB serves as a repair depot for a variety of aircraft, weapons, and engines. Maintenance activities require the use of a variety of hazardous materials in varying quantities that results in the generation of hazardous wastes including solvents, paint strippers, various industrial waste streams, and sludges. Hazardous materials are used by military personnel and on-base contractors throughout the base. The location of hazardous materials, procedures and equipment at Tinker AFB used to prevent and clean up a release, and actions to be taken in the event of a release are located in the *Tinker AFB Spill Prevention Control and Countermeasures Plan* (USAF 2007a).

Hazardous material control and pollution prevention management at TACAMO naval facilities on Tinker AFB including Building 820 are regulated under COMSTRATCOMMWING ONE INST 5100.8E (*Hazardous Material Control and Management Program*). This regulation also defines the operating procedures for the SCW-1 Hazardous Minimization Center (HAZMINCEN). Navy policy requires that hazardous material (issue or waste) be managed and controlled from acquisition through ultimate disposal. The HAZMINCEN site enhances control and management of hazardous material usage and waste within TACAMO facilities by providing a secure environment for the initial issue and storage of hazardous materials, monitoring of environmental activities and compliance, and by providing hazardous materials training for military and contractor personnel.

### **3.2.6.2 Hazardous Waste**

Hazardous wastes includes discarded material (liquid, solid or gas) which meets the definition of hazardous materials and/or is designated as a hazardous waste by the EPA or State hazardous material control authority.

Hazardous wastes are defined by the Solid Waste Disposal Act as amended by the Resource Conservation and Recovery Act (RCRA), which was further amended by the Hazardous and Solid Waste Amendments, RCRA subtitle C (40 CFR, Parts 260 through 270). The USEPA regulatory authority is delegated to the State of Oklahoma. Hazardous waste management at Tinker AFB is also regulated under AFI 32-7013, *Hazardous Waste Management and Minimization*.

These regulations are implemented at Tinker AFB through hazardous waste permitting procedures and the Tinker AFB Hazardous Waste Management Instruction, TI 32-7004. The

document details hazardous waste packaging, turn-in, transportation, storage, recordkeeping, and emergency procedures. Hazardous waste is generated at Tinker AFB from aircraft and jet engine maintenance; automotive, building, and grounds maintenance; laboratory chemicals; spent hazardous materials; and spills. Air Force waste management operations at Tinker AFB are registered with the USEPA under identification number OK1571724391.

Day-to-day operations at Tinker AFB generate multiple types of hazardous wastes that require special handling and proper disposal. These include oils and fuels, cleaning compounds, paints, solvents, and batteries. Hazardous wastes are collected at 1,200 initial accumulation points and approximately 400 hazardous waste staging areas. Once the regulatory storage capacity has been reached, the waste is transferred to the Tinker AFB 90-day Hazardous Waste Management Facility, Building 808 where the waste is sampled. From Building 808, the waste is transferred to the permitted Hazardous Waste Storage Facility, Building 810. Once at Building 810, the waste is removed by a certified contractor within 365 days for off-base treatment/disposal at an appropriate facility (USAF 2007a).

Day-to-day operations at TACAMO facilities generate multiple types of hazardous wastes that required special handling and proper disposal. Within Building 820, a hazardous materials storage area is located on the east side of the building. Hazardous waste is initially collected at four accumulation sites located within each hangar. Each collection site is comprised of eight 5-gallon buckets secured in a containment bin. Hazardous wastes including used oil, petroleum products, paints, thinners, hydraulics, grease, sealants and other hazardous materials are temporarily stored in each bin before transfer to 55-gallon storage drums at a waste staging area located in Building 817 at TACAMO. Once the collection vessel has reached capacity, the hazardous waste is then shipped to the Hazardous Waste Management Facility located in Building 808.

### 3.2.6.3 Environmental Restoration Program

The ERP, formerly known as the Installation Restoration Program, was implemented by the DoD to identify and evaluate areas and constituents of concern of toxic and hazardous material disposal and spill sites. Once the areas and constituents had been identified, the ERP was tasked to remove the hazards in an environmentally responsible manner. All response actions were based upon provisions of the *Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA)*, and the *Superfund Amendments and Reauthorization Act of 1986* as clarified in 1991 by EO 12580, Superfund Implementation.

Tinker AFB has a total of 40 ERP sites, most of which are regulated under RCRA. Twenty-three of the ERP sites are closed or require no further response action. Of the 17 open ERP sites, 5 of these sites are located within one-half mile of the Preferred Alternative.

Table 3-4 provides additional information on the five active ERP sites that are within one-half mile of the proposed demolition and construction activities as summarized from the ERP Management Action Plan (Tinker AFB, 2004 and 2010).



**Table 3-4 Tinker AFB Environmental Restoration Program – ERP Sites and PAOC  
Located Within One-Half Mile of Proposed Demolition and Construction Activities**

Site ID	Site Name	Regulatory Phase	Description
LF012	Landfill #2	LTM	The site is approximately 27.5 acres and houses general, industrial, and radiological waste. The site was utilized from 1945 to 1952. The industrial solvents and petroleum products are believed to be located in the northeast corner of the landfill. The radiological waste (burned radium dials) is located in the center of the landfill. The landfill was capped in 1998 and long-term groundwater monitoring commenced in 2001. Low levels of volatile organics, semi-volatile organics, and trichloroethylene (TCE), and vinyl chloride were observed during trench water sampling.
LF014	Landfill #4	LTM	The site is approximately 12.4 acres and houses general, industrial, and radiological waste. Landfill was utilized from 1961 to 1968. The industrial waste includes land farming sludges collected from the bottom of petroleum and solvent storage tanks. These wastes are located in the central portion of the landfill. Drainage controls around the landfill were put in place in 1997, the landfill was capped in 1998, and long-term groundwater monitoring commenced in 1998. Low levels of volatile organics, semi-volatile organics, and trichloroethylene (TCE), methyl ethyl ketone, toluene, and metals were observed during trench water sampling.
LF015	Landfill #5	LTM	The site is approximately 6 acres and houses approximately 75,000 cubic yards of general and industrial waste. The site consists of trenches that run from northwest to southeast. The trenches are estimated to be 400 feet long, 50 feet wide, and 16 feet deep. The site is located in the southern area of Tinker AFB and is bounded by Tower Road on the west, Taxiway E to the south, and Crutch Creek to the north and east. A compacted clay and topsoil cover was constructed over the trenched area in August 1990, the landfill was capped in 1998 to 1999, and long-term groundwater monitoring commenced in 2001.
CG038	Southwest Groundwater Management Unit	RA-O	The southwest groundwater management unit encompasses four (4) landfills (1942-1968) with several specific-use sludge disposal pits, a fire training area (1950-1970), a sewage impoundment (1954-1970), and a radioactive waste disposal site (1951-1960s). Wastes include general refuse, industrial and sanitary wastes, and low level radioactive waste. Groundwater contaminants are principally solvents and metals. Multiple sites are located in close proximity to one another. Groundwater over a large area under this management unit is contaminated. The principal pathway is groundwater to down gradient private water supply wells, with a lower potential to nearby streams. Wells are within 200 feet of the plume. Most homes have private wells that intersect the same hydrogeologic units as the contaminated units on base. Potential for human exposure to contaminated groundwater in this area exists because Tinker AFB and the surrounding communities of Midwest City and Del City derive their water supplies from the Garber-Wellington Aquifer (Class IIA), and surface water sources.

CG039	East Groundwater Management Unit	RA-O	This groundwater management unit encompasses a waste pit (1947-1958), fuel sites, a landfill (1968-1970), truck maintenance facility (since 1957), and a fire training area (1962-1966). Waste pit received unspecified waste from plating and maintenance facilities. Groundwater contaminants include solvents and metals. Primary pathway is groundwater to base drinking water supply wells. Five such wells are found within this area. Potential for human exposure to contaminated groundwater in this area exists because Tinker AFB and the surrounding communities of Midwest City and Del City derive their water supplies from the Garber-Wellington Aquifer (Class IIA), and surface water sources.
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Source: USAF, 2004.

Notes:

RA-O = Remedial Action Operation

LTM = Long Term Monitoring

#### 3.2.6.4 Asbestos

Tinker AFB has a database of all known asbestos that is identified through sampling during renovation projects and all known asbestos in any given building. The Civil Engineering group manages the program for Tinker AFB.

An Asbestos Management and Operations Plan is in effect at Tinker AFB and qualified contractors are hired to perform abatement and removal when applicable. The plan details procedures for notification, record keeping, protection, and abatement associated with asbestos containing material (ACM). The Asbestos Management and Operations Plan ensures that Tinker AFB is in compliance with all ACM related federal, state, and local regulations. ACM is typically potentially present in pipe insulation, cement pipe, floor tile, floor tile adhesive, roof patching sealant, wall board in mechanical closets, wall and ceiling texture, and wall board panels.

Construction of the Building 820 complex, including construction of the aircraft parking apron, occurred from 1990 to 1992. Construction of Buildings 815 and 816 occurred during the same approximate time period.

#### 3.2.6.5 Lead-Based Paint

At this time, a base-wide lead based paint (LBP) survey has not been conducted for Tinker AFB. As such, it must be assumed that all facilities constructed prior to 1980 have the potential to contain LBP.

Tinker AFB currently maintains a database related to the limited LBP surveys conducted on-base and has a LBP Management Plan. The database currently contains information from LBP surveys and sampling conducted during and after 1994. The LBP Management Plan establishes responsibilities, procedures for assessing risk, hazard management and risk reduction, medical screening, record keeping, and waste disposal requirements, and provides for capture and removal of LBP scrapings or dust. Historic painting activities did not include capture and proper disposal of paint scrapings or dust; therefore, it is possible that the soil in areas where LBP was used may exhibit elevated concentrations of lead.



The facilities present on the Preferred Alternative site were constructed between 1990 and 1992, a period well after LBP use was nationally phased-out.

### **3.2.6.6 Pesticides**

Pesticide application is routinely performed by contract. The Pesticide Management Program is managed by the Pest Management Shop and the main bulk storage facilities for pesticides are located at Building 1049, the Pest Management Shop, and Building 6020, Golf Course Pesticide Shop. Commercially available pesticides and herbicides are applied as needed along roadways, fire breaks, and pre-determined locations (spot applications) throughout Tinker AFB. Application and use of these and all pesticides and herbicides is done in accordance with the Integrated Pest Control Management Plan (USAF 2007a).

Historic pesticide applications have occurred throughout Tinker AFB. Historical pesticides included diazinon, allethrin, chlordane, and pyrethrin-based products. These products were used within appropriate guidelines for application at the time that they were used. Historically, chlordane was injected beneath foundations of buildings when termite infestations were observed. Due to the persistence of chlordane in the environment, it is likely that concentrations of chlordane may be present in soils (USAF 2007a).

### **3.2.7 Occupational Health and Safety**

A safe environment is one in which there is no potential, or an optimally reduced, potential for death, serious bodily injury or illness, or property damage. The elements of an accident-prone environment include the presence of a hazard and an exposed population at risk of encountering the hazard. Numerous approaches are available to manage the operational environment to improve safety including reducing the magnitude of a hazard or reducing the probability of encountering the hazard.

The primary safety programs on USAF installations include Aviation, Weapons, and Ground Safety aspects contributing to an overall safe environment. Aviation Safety includes Aircraft Flying Safety, Airfield Maintenance and Construction, and the Bird/Wildlife-Aircraft Strike Hazard program. The Weapons Safety program establishes and executes mishap prevention programs for all nuclear and conventional weapons systems. Ground Safety addresses operational, occupational, sports and recreation, and traffic safety issues. Ground Safety personnel develop and oversee policy, programs and procedures to provide a safe work environment and enhance the safety of Air Force personnel on and off duty to help maintain combat capability and readiness. As the Preferred Alternative does not involve any changes to weapons operations at Tinker AFB, the safety analysis in this document will be confined to Aviation and Ground Safety programs, including ground safety associated with aircraft maintenance activities.

The Air Force and Navy publish industrial and general ground safety standards as Air Force Occupation Safety and Health (AFOSH) standards and Navy Occupation Safety and Health (NAVOSH) standards respectively, which implement U.S. OSHA standards. Area-specific instructions and technical data include other ground safety criteria. When AFOSH/NAVOSH standards or safety criteria do not cover a situation, non-DoD standards are used, including professional safety and health standards, national consensus standards, and other federal agency

standards. The Air Force implements ground safety elements contained in AFPD 91-2 *Safety Programs* through AFI 91-202 *The US Air Force Mishap Prevention Program*. Tinker AFB maintains an active Aviation and Ground Safety and Mishap Prevention programs that seek to manage risk and prevent mishaps in the areas of operational, occupational, sports and recreation, and traffic safety (USAF 1998).

### **3.2.8 Sustainability Objectives and Targets**

Executive Order 13123, *Sustainable Building Design* calls for federal agencies to improve the energy efficiency of their buildings, promote the use of renewable energy, and reduce greenhouse gas emissions associated with energy use in the buildings, among other energy related requirements. DoD in consultation with the EPA, has developed sustainable design principles for the proper siting, design, and construction of new facilities. These design principles optimize life-cycle costs, pollution prevention costs, and other environmental and energy costs associated with the construction, life-cycle operation, and decommissioning of military facilities.

Air Force Instruction 32-7061, *Environmental Impact and Analysis Process*, establishes policies, procedures, and responsibilities for Air Force implementation of NEPA. Achieving and maintaining environmental quality is essential to the Air Force mission. As part of its management and environmental stewardship responsibilities, the DoD is committed to preserving the environment and promoting environmentally sustainable features.

Sustainability is a term that is broadly defined, and principally targeted to specific applications such as facility design and construction and the environment. In reality, sustainability from a military installation perspective is all about mission. The following includes a discussion of several environmentally-related sustainable features that can be incorporated into programmed actions and that can become an integral component of installation development:

- Review the Leadership in Energy & Environmental Design (LEED) criteria. Make planning decisions to maximize LEED conformity.
- Consider the re-use of existing facilities as opposed to building new when assessing organizational space requirements.
- Look for opportunities to "in-fill" when site planning new facilities. "In-filling" plugs the gaps between existing facilities. Ideally it places functionally related facilities in proximity to one another thereby promoting walking versus driving.
- Think in terms of area as opposed to a single site when site planning a new facility. Preparing area development plans establishes a pattern for future development that creates an effective and efficient arrangement of interrelated facilities, and takes advantage of shared parking to reduce impervious surfaces and promotes pedestrian circulation.
- Conduct a thorough analysis of the project site, including:
  - Avoid sites that require excessive cut and fill. Not only does it increase site preparation costs, it potentially can contribute to future drainage and erosion problems,
  - Site facilities in a manner to preserve existing trees to the extent possible, particularly mature trees,



- Avoid sites that disrupt or damage on-site or downstream habitats,
  - Consider solar gain in facility orientation. With the right orientation, a savings in future energy costs can be realized, and
  - Avoid, if at all possible, sites that encroach on wetlands, wildlife habitats and families of endangered plants.
- Evaluate existing roads and traffic patterns to maximize connectivity and vehicle access while minimizing vehicular-pedestrian conflicts.

### **3.2.9 Infrastructure, Utilities and Energy Systems**

#### **3.2.9.1 Potable Water**

Tinker AFB derives its primary water supply from the Garber-Wellington Aquifer system through 24 groundwater supply wells on the installation. The Garber-Wellington Aquifer system is part of the larger Central Oklahoma Aquifer.

Potable water used for drinking and industrial purposes comes from a depth of 200 ft bgs or greater. Water from the Garber-Wellington Aquifer is of sufficient quality to be used for most industrial, agricultural, and domestic purposes. The aquifer system is primarily recharged by percolation of surface water and by rainfall infiltration and Tinker AFB is considered to be in the recharge zone for the Garber-Wellington Aquifer. These 24 wells range from 700 to 850 feet in finished depth, and yield 205 to 250 gallons per minute (gpm), supplying approximately 6.5 million gallons of water per day to the installation. The system is currently operating at about 75 percent of its capacity and is considered to be in good condition (USAF 2007a).

Additional water supply for Tinker AFB is purchased from Oklahoma City and is provided by the Oklahoma City Water Department at two metered connections. Water is supplied through these connection points at a maximum delivery rate of 6,400 gpm when approximately 80 pounds of pressure per square inch gauge can be maintained. Usage from these two points is limited to two million gallons per day (gpd) (USAF 2007a).

Domestic elevated water storage capacity on the installation provides increased capability to meet peak seasonal or firefighting demands and maintains distribution system pressure. Tinker AFB's water distribution system has five elevated steel tanks. Four of the water storage tanks are 500,000-gallon tanks, and the fifth tank holds one million gallons. Therefore, the total elevated water storage capacity is three million gallons (USAF 2007a).

The water distribution system is almost entirely decentralized and consists of approximately 562,000 linear feet of asbestos cement, cast iron, and polyvinyl chloride (PVC) pipe. Water line sizes range from two inches to ten inches in diameter. Cast iron and asbestos cement water lines were installed initially in 1943; PVC water lines were installed as recently as 2001 (USAF 2007). The existing Building 820 facility receives its potable water supply via a main water line and service connector lines located on the south, east, and west sides of the building. Most of the water is supplied by base wells; however, connections also exist to the Oklahoma City water supply system. There are no water supply wells located within the proposed hangar addition building footprint area; the closest drinking water well, WS-29, is located approximately 1,400 feet to the southwest of the Preferred Alternative.

### **3.2.9.2 Wastewater**

Domestic wastewater at Tinker AFB is collected and discharged to the Oklahoma City wastewater system through four metered discharge points. The majority of the wastewater collection system was constructed in 1943. Most of the lines are made of vitrified clay; however, approximately seven percent of the lines are cast iron and PVC pipe. The size of the force main is approximately 22 inches in diameter and the main itself is concrete. The general condition of the sanitary sewer collection system is fair (USAF 2007a).

The installation operates an Industrial Wastewater Treatment Plant (IWTP). Industrial wastewater is collected in a dedicated sewer system and piped to the installation's IWTP, which is located in the Eastside Depot Maintenance District. The IWTP typically receives and treats 900,000 gpd of wastewater. Wastewater collected for the IWTP is usually contaminated with petroleum products, heavy metals, and organics. These substances are removed from the wastewater at the IWTP and the effluent is then discharged to the municipal wastewater collection system under an Industrial User Permit with the city of Oklahoma City. According to the installation's General Plan, the industrial wastewater system is in excellent condition and the treatment plant is adequately sized to handle normal and peak influent (USAF 2007a).

Building 820 is serviced by both sanitary and industrial waste systems. Service connections to the sanitary waste system are located at five waste inlets located on the south side of Building 820. Service connections to the industrial waste system are located at multiple inlets on the south and east side of Building 820 and within the existing hangar bays. There are two inlets in each hangar bay. One inlet in each bay discharges industrial wastewater directly to the main industrial waste lines located to the east of Building 820. The other inlet is designed to transport aqueous film-forming foam (AFFF) waste used in the fire suppression system as described in Section 4.2.6.1.1 to the west along underground lines located on the north side of Building 820 to an approximately 70-ft by 110-ft lined retention holding area located approximately 525 feet west of Building 820. The biodegradable, water-based AFFF foam product is then allowed to evaporate in the detention area before the residual low-toxicity waste is returned via the same underground lines to the main industrial waste line located to the east of Building 820.

The sanitary and industrial waste systems discharge domestic and industrial wastewater directly to the Oklahoma City wastewater system. Wastewater from Tinker AFB flows to the North Canadian Wastewater Treatment Plant. The North Canadian Wastewater Treatment Plant has a daily average flow of 50 million gallons per day (mgd), with a peak treatment capacity of 120 mgd (Oklahoma City, 2007). There is an existing industrial oil-water separator located on the northeast side of Building 820 that pre-treats industrial wastewater prior to discharge to the main industrial waste system. There are no onsite septic systems at Building 820.

### **3.2.9.3 Solid Waste**

Solid waste generated on the installation is handled base-wide by a private contractor. The contractor is responsible for pick-up and disposal of conventional solid waste generated by routine activities on the base, regardless of the number of receptacles serviced. Construction and demolition debris are not included in that contract. Non-recycled household and office wastes are hauled off-base and disposed of in a licensed landfill facility. Yard waste is kept separate at its



origin/collection point and is hauled to a site on the south side of the installation for composting (USAF 2007a). Municipal solid waste generated from Tinker AFB is disposed of at area solid waste landfills, while construction and demolition waste is disposed of at Waste Management's East Oak Landfill. A trash compactor is located on the west side of the existing Building 820 hangar.

Executive 12780, *Federal Agency Recycling and the Council on Federal Recycling and Procurement Policy*, requires all federal agencies to initiate programs to promote cost-effective waste reduction and recycling of reusable materials in all of its operations and facilities. Tinker AFB has implemented a 24-hour recycling program for office and household waste. The Recycling Center operates under the 72<sup>nd</sup> Force Support Squadron. The Recycling Center furnishes containers for offices and homes, and administers curbside pickup of the material. The Recycling Center mission is to reduce flow of waste to area landfills and to conserve natural resources. It accepts glass, metal, aluminum, cardboard, paper, newsprint and some plastics.

There are no operational municipal solid waste landfills located on Tinker AFB.

#### **3.2.9.4 Transportation**

Three local arterial roadways (Sooner Road, Southeast 29th Street, and Douglas Boulevard) and Interstate Highways 40 and 240 provide access to the installation. There are 17 perimeter gates, 11 of which are used by installation personnel.

The current Tinker AFB transportation network consists of a series of arterial, collector, and local roadway networks. The arterial network is a system of two- to four-lane roads supporting the majority of traffic circulation onto and around the installation. The major arterial roads are Air Depot, East Drive, Arnold, and Patrol Road. The collector network is primarily a two-lane network that provides access to mission facilities and support facilities. The collectors provide access to the arterial road network. The major collectors for Tinker AFB are McNarney Avenue, Reserve Road, and Mitchell Avenue.

Organizational parking is located adjacent to facilities, with limited parking spaces available to accommodate assigned personnel. Although Tinker AFB has 397 acres of parking lots, it is unable to accommodate the needs of all personnel. As a result, many service members are parking their vehicles along streets and in open areas.

The TACAMO area is accessible via two arterial roadways (Midwest Boulevard and Patrol Road). The main entrance to Building 820 and parking for the facility is located on the south side of the complex and is accessed from Mercury Road. There is no internal shuttle service or public transportation access to the TACAMO area. Railroad tracks and a rail storage area are located to the south of Mercury Road; however, the rail facilities are not located on Tinker AFB property and do not connect to or directly serve the TACAMO area or Building 820.

Aircraft access to TACAMO is via a taxiway leading west from the main runway to a parking apron located on the north side of Building 820.

### **3.2.9.5 Electricity/Natural Gas**

Tinker AFB receives its electrical power from Oklahoma Gas and Electric Company (OG&E). Tinker AFB recently privatized the base electrical system and the system was awarded to OG&E. However, the contract is still in the transition period and the base system is still owned by the military. OG&E is expected to own and operate the base electrical system by September 2012.

OG&E currently delivers electrical power through a looped 138-kilovolt (kV) transmission line. The Base has four possible electric utility feeds. The distribution system consists of overhead lines with pole-mounted transformers and underground lines with pad-mounted transformers. Underground electrical lines are both induct and direct buried. The overhead electrical lines are composed primarily of bare aluminum conductor, steel reinforced. The underground electrical lines are composed primarily of shielded copper conductors. Backup power is supplied to key buildings by approximately 72 generators. According to the installation's General Plan, the electrical supply to Tinker AFB is adequate and the electrical distribution system is in good condition (USAF 2007a).

Oklahoma Natural Gas (ONG) Company delivers natural gas to the installation at three metered delivery points. Although the natural gas supply to the installation is adequate to meet existing needs and provide for future expansion, many natural gas lines and valves are old and deteriorated and should be replaced and upgraded. These cast iron pipes were installed over 60 years ago, and many lines are severely corroded. The condition of the pipes results in gas pressure instability (USAF 2007a).

Building 820 receives electricity from OG&E via both overhead and underground distribution systems. Several pole- and pad-mounted transformers are located on site. Main power is supplied to the electrical substation located in Building 829 on the east side of Building 820 that in turn provides power to the facility's transformers. Natural gas is supplied to Building 820 by ONG via an existing underground 3-inch natural gas main line with service connections at two tie-ins located on the south side of Building 820.



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## CHAPTER 4 ENVIRONMENTAL CONSEQUENCES

### 4.1 INTRODUCTION

This chapter describes the potential environmental impacts that are likely to occur as a result of implementation of the Preferred or No-Action Alternatives. The No-Action Alternative provides a baseline against which the impacts of the Preferred Alternative can be compared. A discussion of mitigation measures is included as necessary. Potential cumulative impacts associated with implementation of the Preferred Alternative are also presented. Criteria and assumptions used to evaluate potential impacts are discussed at the beginning of each section.

### 4.2 DESCRIPTION OF THE EFFECTS OF ALL ALTERNATIVES ON THE AFFECTED ENVIRONMENT

#### 4.2.1 Noise

When evaluating noise effects, several aspects are examined, including: 1) the degree to which noise levels generated by mission operations, as well as ongoing construction, demolition, and renovation activities are higher than the ambient noise levels; 2) the degree to which there is hearing loss and/or annoyance; and 3) the proximity of noise-sensitive receptors (i.e., residences) to the noise source. An environmental analysis of noise includes the potential effects on the local population. Such an analysis estimates the extent and magnitude of the noise generated by the proposed and alternative actions.

##### 4.2.1.1 Preferred Alternative

No significant adverse noise impacts would result from implementing the Preferred Alternative, though some negligible to minor short-term localized adverse impacts from the demolition and construction activities would be expected. There are no sensitive noise receivers located in proximity to the project area that would be affected by the Preferred Alternative. The nearest on-base sensitive noise receiver is a family campground, picnic area and fishing pond located along Patrol Road approximately 1,950 feet to the northwest of Building 820. The nearest off-base sensitive noise receiver is a residence on South East 59<sup>th</sup> Street, located approximately one mile west-northwest of Building 820. According to noise contours as shown in the latest Tinker AFB noise model (USAF 2006a), both sensitive noise receiver areas are currently located well outside of the 65 DNL noise impact contour. As a result, no increase of noise as a result of either the construction or operation of the Preferred Alternative would occur at either of these receiver locations.

**Construction Impacts:** Noise associated with limited demolition and construction activities do not typically generate a predicted noise exposure of 65 dBA DNL or greater at distances of more than 1,000 feet from the source. The nature of sound is such that the temporary noise effects from the operation of construction equipment are reduced to acceptable levels with increased distance from the source. In addition, construction noise impacts near airfields are minor compared to the existing noise environment created by the operation of aircraft. Therefore, noise levels from demolition and construction activities would be insignificant compared to the daily



airfield operations, and the effects of construction noise could be reduced by employing BMPs such as limiting construction activities to normal working hours and employing noise-controlled construction equipment during daily activities.

There could be temporary, short-term increased noise levels at the project site itself resulting from activities inherent to construction and demolition activities. These activities would produce noise generated by heavy equipment and vehicles involved in demolition, site preparation, foundation preparation, and construction work. There would be a possibility of short-term, localized speech interference or annoyance near construction zones. Personnel in or around construction areas would be exposed to construction noise intermittently, and only for the duration of the project; therefore, an extended disruption of normal activities would not be anticipated. Adherence to standard Air Force and Navy Occupational Safety and Health regulations would minimize the risk of hearing loss to construction workers. These regulations require hearing protection along with other personal protective equipment and safety training.

**Operational Impacts:** Once the hangar addition becomes operational, negligible adverse long-term noise effects would be expected from its daily use. Noise would be generated from hangar operations (e.g., opening/closing of hangar bay doors), mechanical and electrical equipment used on-site, power tools, maintenance personnel, and aircraft and vehicles in and near the hangar bay. In addition, during a power outage, the use of emergency generators could create a short-term noise impact. However, the noise impact created by the facility and non-aircraft vehicle operations would be insignificant compared to the daily airfield operations and TACAMO aircraft. Again, adherence to standard Air Force and Navy Occupational Safety and Health regulations would minimize any risk of hearing loss to operational and maintenance personnel.

No additional aircraft or vehicles accessing the site are expected as a result of the Preferred Alternative. Also, there would be no increase in personnel within Building 820 as on-site personnel would relocate to the hangar addition.

#### **4.2.1.2 No-Action Alternative**

Under the No-Action Alternative there would be no change to the existing noise environment as described in Section 3.2.1. No additional sources of noise, outside of routine maintenance activities that may occur on existing apron areas located west of Building 820 are expected.

### **4.2.2 Land Use**

A comparative methodology was used to determine impacts to land use at Tinker AFB. The Preferred Alternative was examined and compared to existing and future land use conditions and land use plans. Potential impacts were identified as they would relate to changes in land use classifications, extent of changes, and potential conflicting uses on- and off-base.

#### **4.2.2.1 Preferred Alternative**

No significant adverse effects on land use would be expected as a result of the implementation of the Preferred Alternative. The proposed project would be primarily constructed on developed property located to the west of Building 820. This property is currently paved with concrete as an aircraft parking apron and storage area. However, a small amount of undeveloped land consisting

of unpaved, open space is located further to the west of the paved parking apron. Depending upon final design, a portion of this open space may be paved with concrete and converted to an aircraft parking apron or utilized in the foundation of the new hangar facility. Thus, the Building 820 hangar addition could potentially change the current land use of this portion of land from open space to aircraft operations and maintenance. The new land use however, would be compatible with the adjacent hangar and aircraft parking apron uses for the existing TACAMO Building 820 area. In addition, these land uses are consistent with the Tinker AFB's Area Development Plan for the area, which proposes the conversion of all of the open space currently located between Building 820 and Hercules Road located to the west of the proposed project site to either an Aircraft Operations and Maintenance use or Airfield use. Therefore, the Preferred Alternative would not be expected to conflict with any existing or planned Tinker AFB land use.

#### **4.2.2.2 No-Action Alternative**

Under the No-Action Alternative, demolition and construction activities at Building 820 would not occur and there would be no change to the baseline land-use environment as described in Section 3.2.2. No impacts to land use would result.

#### **4.2.3 Air Quality**

Tinker AFB is not located in a nonattainment or maintenance area, therefore a general conformity analysis is not required. The closest PSD Class I area is the Wichita Mountains National Wildlife Refuge, with the nearest border approximately 80 miles from Tinker AFB. Emissions from the Preferred Alternative would contribute to minor local impacts at Tinker AFB but would not impact the Wichita Mountains National Wildlife Refuge.

##### **4.2.3.1 Preferred Alternative**

The Preferred Alternative would result in short-term emissions during onsite demolition and construction activities and paving operations. Although final design plans for the facility have not been completed, new sources of air emissions as a result of operations of the proposed facility expect to include the installation of one boiler/heat converter unit, the use of an onsite diesel-powered fire pump, and fugitive emissions associated with fuel-cell maintenance activities.

**Construction Impacts:** Potential air quality emissions associated with construction of the Preferred Alternative include criteria pollutant emissions from construction equipment and personal vehicles accessing the site during demolition and construction activities, VOC emissions from paving operations, and particulate fugitive dust emissions. The construction equipment would likely consist of large diesel vehicles used for earth work and pavement demolition and installation. The combustion of fuel by the demolition and construction equipment and related vehicles involved in the Preferred Alternative would cause a short-term increase in CO, VOC, NO<sub>x</sub>, SO<sub>2</sub>, PM<sub>10</sub>, and PM<sub>2.5</sub>. However, the effects from these activities would last only as long as the duration of the activity, and fall off rapidly with distance from the site, not resulting in long-term impacts.

Fugitive dust emissions would result from wind-blown dust and the disturbance of soil by heavy equipment operating at the site. Fugitive dust emissions would be temporary and insignificant



compared to area-wide total emissions and would only occur during the approximately 18-month construction period for the Preferred Alternative. Air quality impacts would be controlled and minimized to the extent practicable through implementation of BMPs. These measures could include construction sequencing, watering down areas to control dust, use of dust suppressants, and minimizing the amount of time that ground is disturbed.

**Operational Impacts:** Potential air quality emissions associated with operation of the proposed hangar addition include emissions from a proposed boiler/heat converter unit, emissions from the use of an onsite diesel-powered fire pump, and fugitive emissions associated with fuel-cell maintenance operations. The long-term emissions at Tinker AFB would likely remain relatively unchanged due to the integration of many separate maintenance functions into the single bay facility from activities currently performed in other areas of Building 820. Other emissions associated with the use of an onsite fire pump would be temporary, only occurring during fire suppression operations. The existing Tinker AFB Title V air operating permit would be modified to include these new sources of air emissions in the proposed hangar addition.

#### **4.2.3.2 No-Action Alternative**

Under the No-Action Alternative, no hangar addition to Building 820 would be constructed and all current features located west of Building 820 would be retained. There would be no change in Tinker AFB emissions and therefore no changes to air quality conditions in the region.

#### **4.2.3.3 Regional Significance**

Air quality impacts resulting from demolition and construction activities and future operations at the hangar addition facility would not contribute to significant increases in regional pollutant emissions. Given the small amount of emissions that would be produced under the Preferred Alternative, and the fact that much of the emissions would be construction-related and short-term in nature, it is anticipated that the Preferred Alternative would not be regionally significant and only have negligible adverse impacts on the local and regional air quality.

No mitigation actions would be required. BMPs would include among others watering the disturbed area of the demolition and construction, covering dirt and aggregate trucks and/or piles, prevention of dirt carryover to paved roads, and the use of erosion barriers and wind breaks.

#### **4.2.4 Water Resources**

Impacts to surface water and groundwater may occur if project activities result in the following:

- Surface water quality declining such that the existing surface water quality standards would be violated.
- An increase in water usage from the Central Oklahoma Aquifer that is located below Tinker AFB.

#### **4.2.4.1 Surface Water**

##### **4.2.4.1.1 Preferred Alternative**

The Preferred Alternative consists of constructing an addition to Hangar 820 which would include demolition, shallow excavation, paving, and construction activities. The potential for increased sediment loading of surface water during the initial demolition and construction activities is the most likely impact associated with this alternative. This potential would be short-term and manageable through implementation of a SWP3 along with the incorporation of BMPs for sediment control during construction. Implementation of these actions would minimize potential water quality problems.

The construction of the Preferred Alternative would result in a minor increase in total impervious cover. Any increased runoff has the potential to increase sediment loads within the water bodies associated with Tinker AFB. Any increase in storm water should be managed by the proposed improvements to the present storm water drainage system.

While facility design plans have not yet been finalized, industrial floor drains would convey discharge flow from the proposed hangar bay through an on-site industrial oil-water separator prior to discharge to the Oklahoma City Wastewater System. AFFF used for fire suppression in the fuel cell maintenance bay would be stored in areas that include secondary containment measures. Therefore, any spill of aqueous AFFF product would be contained on site and would not enter water courses or into installation storm drains and the wastewater system. In the event of a fire and the use of AFFF for fire suppression, AFFF would be contained within the hangar bay. Excess AFFF foam product would be allowed to drain via underground piping that would convey AFFF foam waste to an external detention area for evaporative processing prior to final conveyance to the Oklahoma City Wastewater System. Any residual AFFF waste would be collected with absorbent materials, and all excess AFFF would be disposed of following state and federal regulations.

Permitting for point and storm water discharges has been delegated to the state of Oklahoma by the NPDES. Individual and general storm water permits require the permittee to develop and implement a pollution prevention plan to monitor discharges for specific pollutants. Tinker AFB is an industrial facility and as such has obtained an OKR05 Multi-Sector General Permit (MSGP) for Storm Water Discharges Associated with Industrial Activities and a OKR04 General Permit for Phase II Small Municipal Separate Storm Sewer System Discharges from the ODEQ. Tinker AFB also has an individual NPDES permit, OK0000809, which regulates stormwater discharge from ten outfalls and ten impoundments. These permits allow Tinker AFB to discharge storm water associated with industrial activities into receiving waters within the state of Oklahoma. The permits require monitoring of specific pollutants at outfalls, utilization of best management practices (BMPs), and implementation of engineering controls to control runoff (USAF 2007c).

The current Tinker AFB MSGP would be amended to include the property, activities, and discharges that would result. The additional sediment loads created during the construction should be maintained and managed by the proper implementation of the base wide SWP3. Each construction project would require a NOI under the General Permit for Storm Water Discharges from Construction Activities within the State of Oklahoma, OKR10, to be filed with Tinker AFB



and the creation and implementation of a site specific SWP3 would be required. Tinker AFB would also need to modify their individual NPDES permit.

The facility would also comply with Stormwater Quantity and Quality Control requirements as contained in the DoD Unified Facilities Criteria for Low Impact Development.

In accordance with the Energy Independence and Security Act of 2007, all construction projects should include site planning, design, construction, and maintenance strategies to maintain or restore, to the maximum extent technically feasible, the predevelopment hydrology of the property with regard to the temperature, rate, volume, and duration of runoff flow.

#### **4.2.4.1.2 No-Action Alternative**

Under the No-Action Alternative, there would be no change in the baseline conditions described in Section 3.3.4.1. No impacts to surface water would result.

### **4.2.4.2 Groundwater**

#### **4.2.4.2.1 Preferred Alternative**

Documented contamination of some groundwater resources at Tinker AFB has resulted in the implementation of a comprehensive groundwater monitoring and management program. The construction of the Preferred Alternative would require shallow excavations in order to set the building foundations. It is not anticipated that the nearby groundwater wells would be affected and no impacts to the quality or quantity of groundwater at Tinker AFB would result.

During construction, there is a potential for the excavations to interact with contaminated groundwater. If groundwater is encountered during these activities, care would be taken to ensure that groundwater resources and human health are protected from potential contaminants or potentially contaminated groundwater through the implementation of appropriate BMPs.

#### **4.2.4.2.2 No-Action Alternative**

Under the No-Action Alternative, there would be no change in the baseline conditions described in Section 3.3.4.2. No impacts to ground water would result.

### **4.2.4.3 Wetlands and Floodplains**

#### **4.2.4.3.1 Preferred Alternative**

Under the Preferred Alternative, construction and demolition activities would not occur in a floodplain or in areas containing wetlands. Therefore, no impacts to wetland or floodplains would be expected to occur.

#### **4.2.4.3.2 No-Action Alternative**

Under the No-Action Alternative, there would be no change in the baseline conditions described in Section 3.3.4.2. No impacts to wetlands or floodplains would result.

#### **4.2.5 Earth Resources**

Protection of unique soil and geological features, minimization of soil erosion, and the siting of facilities in relation to potential geologic hazards are considered when evaluating potential impacts on geological resources. Generally, impacts can be avoided or minimized if proper construction techniques, erosion control measures, and structural engineering designs are incorporated into project development.

Effects on geology and soils would be adverse if they alter the lithology, stratigraphy, and geological structures that control groundwater quality, distribution of aquifers and confining beds, and groundwater availability; or change the soil composition, structure, or function within the environment.

##### **4.2.5.1 Preferred Alternative**

Demolition and construction activities on Tinker AFB would occur in currently developed land uses. Soils in the vicinity of project area have been altered over time and permanently disturbed. The Preferred Alternative would not alter lithology, stratigraphy, and geological structures that control groundwater quality; therefore no adverse impacts to geology or soils are anticipated.

Short term negative impacts would be expected to occur during the construction period from activities associated with site preparation, grading, vehicular soil compaction. However, these activities would be mitigated through implementation of proper BMPs during construction. In addition, it is also possible that contaminated soils not previously identified could be encountered during demolition and construction activities. If contact is made with such contaminated soils, care would be taken to ensure that human health is protected from the potentially contaminated soil through the implementation of appropriate BMPs.

##### **4.2.5.2 No-Action Alternative**

Under the No-Action Alternative, there would be no change in the baseline conditions described in Section 3.3.6. No impacts on climate, topography and geomorphology, geology, or soils would result.

#### **4.2.6 Hazardous Materials and Wastes**

The degree to which proposed demolition, construction and operations activities could affect the existing environmental management practices at Tinker AFB and TACAMO was considered in evaluating potential impacts to hazardous materials and wastes, including ERP sites.

##### **4.2.6.1 Hazardous Materials**

###### **4.2.6.1.1 Preferred Alternative**

**Construction Impacts:** The use of hazardous materials during the demolition and construction activities associated with the Preferred Alternative is expected to be limited to construction equipment and vehicle maintenance (fuel, oils, and lubricants) and construction activities (adhesives, sealants, etc.). These materials would be properly contained, manifested, and managed according to contractor and Tinker AFB hazardous materials procedures.



**Operational Impacts:** No significant adverse impacts would result from the implementation and operation of the proposed hangar addition. The facility would be constructed as a dedicated fuel cell aircraft maintenance hangar including one service bay along with room for aircraft maintenance shops and a controlled temporary waste storage area. Aircraft maintenance activities require the use of several types of hazardous materials typically found in aircraft maintenance environments including fuels (gasoline and diesel), hydraulic fluids, grease, sealants, cleaners, degreasers, solvents, paints, and batteries. There could be negligible to minor adverse impact for the long-term management of hazardous materials and hazardous waste streams; however, all hazardous materials would be handled and stored in appropriate hazardous materials cabinets or containers in accordance with applicable regulations and label precautions.

The management and control of hazardous materials in the proposed hangar addition would adhere to existing policies and procedures for Building 820 as established through the TACAMO HAZMINCEN. All hazardous materials would be initially issued through requisition from the HAZMINCEN. A Hazardous Materials Requisition Form would be completed and the hazardous materials would be tracked through HAZMINCEN's Hazardous Materials Management System. For longer term use (72 hours maximum), hazardous materials would be temporarily stored in a locked, flame-proof storage locker within the hangar bay. All materials are required to be returned to HAZMINCEN upon partial or final use for disposition and recording.

The maintenance hangar addition would be constructed with an approved AFFF fire suppression system. An AFFF system would include foam storage tanks and pumps similar to other AFFF systems installed in other approved fuel cell maintenance hangars on Tinker AFB. AFFF foam products are classified as biodegradable, low-toxicity aqueous-based products that are approved for treatment in sewage treatment plants. Industrial floor drains in the proposed hangar bay would connect to underground piping that would convey AFFF foam waste to an external detention area for evaporative processing prior to final conveyance to the Oklahoma City Wastewater System.

Depending upon final design plans for the Preferred Alternative, an approximately 15 ft long by 9 ft wide by 7 ft high aboveground petroleum storage tank may require relocation. The fuel tank, which holds approximately 4,000-gallons of JP-8 jet fuel and approximately 1,000-gallons of MOGAS (motor gasoline) fuel, is currently located west of Building 820 near the southeast corner of Building 837. In the event that the fuel storage tank is required to be relocated, the tank will be emptied of all contents following established HAZMINCEN procedures and moved via forklift to a nearby location.

### **Asbestos**

ACM is potentially present in pipe insulation, cement pipe, floor tile, floor tile adhesive, roof patching sealant, wall board in mechanical closets, wall and ceiling texture, and wall board panels of all buildings located on Tinker AFB. ACM is also potentially present in thermal insulation of elbow gasket material and boiler rope gasket material, transite panels, mastic under floor tile and linoleum. The demolition of Buildings 815 and 816 on the proposed site of the hangar addition project is not expected to require abatement and removal of ACM since the structures were constructed or installed from 1990 to 1992. However, in the event that ACM

materials are suspected or found in any structure to be demolished as part of the Preferred Alternative, the guidelines present in the Tinker AFB Asbestos Management and Operation Plan would be followed to abate all ACM from the affected units and such materials would be removed and disposed of in accordance with applicable environmental and safety regulations.

#### **Lead-Based Paint**

LBP must be considered to be potentially present in all facilities constructed prior to 1980 at Tinker AFB. The existing facilities within the project area were constructed between 1990 and 1992; therefore demolition of structures on the proposed site of the hangar addition project is not expected to require abatement and removal of LBP. However, if LBP is discovered during on-site structure and soil investigations prior to subsequent demolition activities at Buildings 815 and 816, the contractor would be required to follow Tinker AFB's LBP Management Plan.

#### **Pesticides**

Currently Tinker AFB management applies commercially available pesticides. Tinker AFB records indicate the historical application of several pesticides that are no longer approved for use. Although these pesticides were used in accordance with manufacturers' guidance and directions, the potential exists for residual concentrations in the soil underlying on-base facilities. If it is necessary to remove soils for off-site disposal, a limited number of random samples would be collected to assess the presence or absence of pesticides in soil, and to properly categorize the soil for hazardous constituents per applicable state and federal regulations for disposal off-site.

##### **4.2.6.1.2 No-Action Alternative**

Under the No-Action Alternative, there would be no changes to existing hazardous material management procedures at Tinker AFB as no TACAMO facilities would be demolished and the hangar addition would not be constructed. No impacts from hazardous materials would result.

##### **4.2.6.2 Hazardous Waste**

###### **4.2.6.2.1 Preferred Alternative**

**Construction Impacts:** The potential exists for the temporary storage of small quantities of fuel and oil at the construction site to maintain and refuel construction equipment during construction activities; however, these locations would include both primary and secondary containment measures. In addition, contractors would be required to develop and maintain a site-specific Spill Control Plan prior to the start of construction, and all construction personnel would be briefed on the implementation and responsibilities of this plan.

**Operational Impacts:** Operation of the proposed hangar addition may require modification of the Tinker AFB Hazardous Waste Management Plan. A new hazardous waste accumulation point located within the proposed hangar addition would need to be pre-inspected by safety, fire, and environmental representatives. All hazardous waste operations would be in compliance with AFI 32-7042, *Solid and Hazardous Waste Management*.



The generation of hazardous waste at the proposed hangar addition would likely result in negligible short- and long-term adverse impacts, based on the potential for small spills and the overall use of hazardous materials within Building 820 and disposal of hazardous waste at Tinker AFB. The activities in the proposed maintenance hangar addition would be similar to activities currently ongoing at other maintenance hangars located at Tinker AFB. All spills would be handled in accordance with existing HAZMINCEN Spill Response Procedures. Spill response procedures include shutting down the industrial drain lift station (if necessary) and/or blocking hazardous materials from entering a nearby creek via storm drains.

Negligible to minor long-term adverse effects would be expected in storing and handling of hazardous waste. The use and storage of all hazardous materials within Building 820 would closely follow existing HAZMINCEN hazardous waste procedures. Hazardous waste would be initially marked and stored in an approved containment bin located within the proposed hangar. The containment bin would be similar to other containment bins located in other hangar bays in Building 820. Each bin is designed to hold eight 5-gallon buckets for the temporary storage of hazardous waste. Waste material is then securely moved to a waste staging area located in Building 817 where the hazardous waste is transferred to 55-gallon drums. From Building 817, all hazardous waste is taken to the Tinker AFB 90-day Hazardous Waste Management Facility in Building 808 where the waste is sampled before being transferred to the permitted Hazardous Waste Storage Facility located in Building 810 for disposal. Any spills or releases of hazardous wastes would be handled according to the Tinker AFB Spill Prevention Plan.

While facility design plans have not yet been finalized, industrial floor drains would convey discharge flow from the proposed hangar bay through an on-site industrial oil-water separator prior to discharge to the Oklahoma City Wastewater System. AFFF used for fire suppression in the fuel cell maintenance bay would be stored in areas that include secondary containment measures. Therefore, any spill of aqueous AFFF product would be contained on site and would not enter water courses or into installation storm drains and the wastewater system. In the event of a fire and the use of AFFF for fire suppression, AFFF would be contained within the hangar bay. Excess AFFF foam product would be allowed to drain via underground piping that would convey AFFF foam waste to an external detention area for evaporative processing prior to final conveyance to the Oklahoma City Wastewater System. Any residual AFFF waste would be collected with absorbent materials, and all excess AFFF would be disposed of following state and federal regulations.

The hazardous waste generated by operations within the Building 820 fuel cell maintenance hangar would be similar to wastes currently generated by other aircraft maintenance hangar operations at Tinker AFB, and the additional amount generated would be very small in comparison to current amounts generated on the base. Therefore, the Preferred Alternative would not result in a significant hazard to the public or environment regarding the transport, use, or disposal of hazardous materials or wastes.

#### **4.2.6.2.2 No-Action Alternative**

Under the No-Action Alternative, there would be no changes to existing hazardous waste management activities at Tinker AFB as no TACAMO facilities would be demolished and the hangar addition would not be constructed. No impacts from hazardous waste would result.

#### **4.2.6.3 Environmental Restoration Program**

##### **4.2.6.3.1 Preferred Alternative**

The TACAMO area of Tinker AFB is located within the limits of two Groundwater Management Units, CG038 - Southwest Groundwater Management Unit and CG039 - East Groundwater Management Unit. As described in the Section 3.2.4.2., ground water contamination has been recorded at monitoring wells within the vicinity of the Proposed Action. However, the Preferred Alternative site is not located within the limits of either Groundwater Management Unit and as it is not anticipated that nearby groundwater wells would be affected by demolition and construction activities, neither ERP site is expected to pose a constraint to the design, construction, or operation of the proposed Building 820 hangar addition facility.

If groundwater is encountered during demolition and construction activities, care would be taken to ensure that groundwater resources and human health are protected from potential contaminants or potentially contaminated groundwater.

It is also possible that contaminated soils not previously identified on Tinker AFB may be encountered during demolition and construction activities related to the Preferred Alternative. If contact is made with contaminated soils, care would be taken to ensure that human health is protected from the potentially contaminated soil as per applicable health and safety guidance.

##### **4.2.6.3.2 No-Action Alternative**

Under the No-Action Alternative, there would be no change in the baseline Environmental Restoration Program conditions as described in Section 3.2.6.3.

#### **4.2.7 Occupational Health and Safety**

##### **4.2.7.1 Preferred Alternative**

**Construction Impacts:** Short-term, minor adverse effects to occupational health and safety would be expected due to the demolition and construction activities proposed for the Building 820 hangar addition. Construction contractors would be required to establish and maintain safety programs that would provide protection to their workers and limit the exposure of base personnel to construction hazards. All demolition and construction activities would adhere to Ground and Flight Safety requirements as contained in AFI 91-202 *The US Air Force Mishap Prevention Program*.

In areas throughout Tinker AFB and the proposed Building 820 hangar addition area, there is a potential for demolition and construction activities to encounter groundwater or potentially contaminated soils. Proper safety precautions would be put in place in the event contaminated groundwater or other contaminated materials are encountered during construction activities.

**Operational Impacts:** There would be no significant increase in safety hazards associated with proposed operations at the Building 820 hangar addition facility. The facility would accommodate the E-6 aircraft and provide a fully enclosed heated and ventilated space for fuel cell maintenance and phased maintenance operations. The hangar bay would be constructed with



a state-of-the-art ventilation duct system with an outside air delivery monitoring system. The ventilation system would be appropriately sized for the proposed fuel cell maintenance activities.

Daily operations and maintenance activities within Building 820 are currently performed in accordance with applicable Navy safety regulations. Detailed SOPs have been established to fulfill health and safety requirements. Personnel involved with maintenance equipment would be instructed on the use of the equipment and personal PPE prior to its use.

Consolidating aircraft maintenance operations from other maintenance hangar bays and flight line areas to a dedicated fuel cell maintenance hangar would be expected to result in long-term positive impacts to the Occupational Safety and Health environment at Building 820 and Tinker AFB. Increased space for performing maintenance activities and improvements to the overall work environment would be expected to translate into fewer occupational mishaps. Relocation of maintenance activities from existing outdoor flight line areas near Building 820 would also be expected to reduce occupational and operational hazards, thereby creating a safer work environment for maintenance personnel.

#### **4.2.7.2 No-Action Alternative**

Under the No-Action Alternative, Buildings 815 and 816 and sections of the existing aircraft parking apron would not be demolished and the Building 820 hangar addition would not be constructed. Therefore, there would be no changes to the existing Occupational Health and Safety Program at Tinker AFB. However, reduced hangar availability at TACAMO facilities would continue to force maintenance activities to be performed in outdoor flight line areas in sub-standard conditions. Therefore, increased safety hazards resulting from maintenance personnel being exposed to outdoor elements would continue to exist.

### **4.2.8 Sustainability Objectives and Targets**

#### **4.2.8.1 Preferred Alternative**

In accordance with Executive Order 13123, *Sustainable Building Design* and other Executive Orders and laws, the Preferred Alternative incorporates sustainable features into the design of the Building 820 hangar addition including siting of the hangar bay as an addition to an existing hangar instead of as a stand-alone structure, using in-fill development of unused space at TACAMO, following Tinker AFB area development plans for the construction of interrelated facilities in proximity to each other, and properly siting the hangar bay facility to avoid known environmental constraints such as placement near an adjacent creek.

The following sustainable features are expected to be included in the final design of the proposed hangar addition facility:

- Energy Star Roof,
- Water Use Reduction,
- High Efficiency Chiller and Premium Motors,
- Occupancy Sensor Controls and Continuous Metering,

- Energy Recovery Unit,
- Storage and Collection of Recyclable Materials and Waste,
- Use of Regional Materials in Construction,
- Certified Wood and Low Emitting Materials
- Outside Air Delivery Monitoring, and
- Incorporation of an Indoor Air Quality Management Plan.

The proposed hangar addition would be designed and constructed to receive a minimum LEED Gold-level rating certified by the U.S. Green Building Council. The facility would also comply with Stormwater Quantity and Quality Control requirements as contained in the DoD Unified Facilities Criteria for Low Impact Development.

The Preferred Alternative would incorporate sustainable objectives into the design, construction, and operation of the proposed hangar bay facility; therefore, positive impacts to long-term sustainability objectives would result.

#### **4.2.8.2 No-Action Alternative**

Under the No-Action Alternative, no hangar addition facility would be constructed at Building 820. No sustainability objectives would be met.

### **4.2.9 Infrastructure, Utilities and Energy Systems**

Overall effects on infrastructure, utilities and energy systems as a result of implementation of the Preferred Alternative would be negligible, since existing utility services are expected to be adequate for current and future usage demands. Some highly localized, temporary disruptions would be expected as utility lines and linkages are adjusted or extended as necessary to suit the specifics of the proposed Building 820 hangar addition project.

The following factors were considered in evaluating potential impacts to infrastructure, utilities and energy systems: (1) the degree to which a transportation system would have to alter operating practices to support the action, (2) the degree to which the increased demands from the Preferred Alternative would reduce the reliability of a transportation systems and (3) the degree to which the change in demands from implementation of the proposed or alternative actions would impact a utility system's design or carrying capacity.

#### **4.2.9.1 Potable Water**

##### **4.2.9.1.1 Preferred Alternative**

**Construction Impacts:** Demolition of facilities as well as construction of the hangar addition would result in a slight increase in potable water consumption as a result of dust suppression activities. This increase would be minor and short-term in nature.

**Operational Impacts:** Anticipated water uses for the operation of the proposed facility include potable water for consumption and personnel use, facility wash down and maintenance needs.



Some aircraft maintenance personnel and operations would be relocated to the proposed hangar addition facility from other hangar bays located within Building 820. However, no additional personnel would be employed or housed within the new facility. It is anticipated that current operations for Building 820 personnel transferred to the hangar addition would consume approximately the same amount of water at the new location.

The proposed usage and occupancy for the proposed hangar addition is anticipated to generate similar water demands as other hangar bays located in Building 820 with the exception of increased demand for the fire protection for the new hangar bay. However, it is expected that the bulk of fire protection needs for the fuel-cell maintenance bay addition would be provided by the high expansion foam system.

There are existing potable water supply lines that serve Building 820 that can provide potable water to the proposed hangar addition. However, a main water line located within the proposed hangar addition footprint as well as building connector water lines servicing Buildings 815 and 816 would require relocation prior to construction.

The proposed use of the Building 820 hangar addition is not expected to exceed the capacity of the Tinker AFB water distribution system, therefore, no significant adverse impacts to water supply systems would result from implementation of the Preferred Alternative.

#### **4.2.9.1.2 No-Action Alternative**

Under the No-Action Alternative, there would be no changes to the existing water supply system at Tinker AFB. No impacts to the existing water supply would result.

#### **4.2.9.2 Wastewater**

##### **4.2.9.2.1 Preferred Alternative**

Demolition of Buildings 815 and 816 as well as construction of the Building 820 hangar addition project would not be expected to change the amount of domestic wastewater generated at Tinker AFB.

Building 820 is currently serviced by both sanitary and industrial waste systems; therefore, construction of new waste lines is not necessary. However, both sanitary and industrial waste lines would be extended underground to support the new hangar addition. It is expected that service connections for sanitary waste lines would be extended on the south side of the new hangar addition to the sanitary waste system main line. Service connections to the industrial waste system within the hangar bay addition are expected to be similar in both design and function to the existing hangar industrial waste system. Two waste inlets would discharge waste streams to either the main industrial waste line located to the east of Building 820 or to the AFFF detention area located to the west of Building 820. The sanitary and industrial waste systems would continue to discharge domestic and industrial wastewater (after pre-treatment of industrial wastewater at an on-site industrial oil-water separator and at the IWTP) to the Oklahoma City wastewater system. No new waste streams would be created as a result of the Preferred Alternative and no additional pre-treatment facilities would be constructed within Building 820.

Operations within the new hangar addition could generate slightly higher amounts of both sanitary and industrial wastewater relative to the existing waste amounts within Buildings 815, 816, and 820. However, wastewater generation at the new hangar facility would not be expected to exceed the capacity of the Tinker AFB IWTP or the existing City of Oklahoma City wastewater sewer system servicing the Building 820 area. Therefore, there would be negligible change to domestic and industrial wastewater generation as a result of the Preferred Alternative.

#### 4.2.9.2.2 No-Action Alternative

Under the No-Action Alternative, there would be no changes to the existing wastewater system infrastructure at Building 820 and Tinker AFB. No impacts to the existing wastewater system would result.

#### 4.2.9.3 Solid Waste

The following factors were considered in evaluating potential impacts to solid waste management: the degree to which proposed demolition, construction, changes in operations, and the potential for generating additional waste could affect the existing solid waste management program. The contractor would be responsible for managing any LBP or ACM discovered during demolition according to local, state, and federal regulations.

##### 4.2.9.3.1 Preferred Alternative

Demolition of facilities would result in a short-term increase in the amount of solid waste generated at Tinker AFB. Table 4-1 summarizes the estimated solid waste generation expected from implementation of the project including demolition of Building 815 (500 SF), Building 816 (300 SF), and existing parking areas located west of Building 820 (approximately 28,245 SF). Construction and demolition waste generated would not be expected to have an adverse impact on the life expectancy of the East Oak Landfill.

**Table 4-1 Solid Waste Generated from Demolition of Facilities under the Preferred Alternative**

Description of Action	Total Affected Area (SF)	Rate of Debris Generated <sup>a</sup> (lb/SF)	Estimated Solid Waste Generated from Demolition (Tons)
Demolition <sup>b</sup>	29,045	111	1,612

Notes:

lb/SF = pounds per square foot

SF = square feet

<sup>a</sup> USEPA 1998

<sup>b</sup> Demolition debris includes concrete slabs from all affected buildings and pavement areas

Construction of infrastructure to support the proposed hangar addition would result in a minor, short-term increase in solid waste generation. Also, a trash compactor located on the west side of Building 820 may require relocation prior to construction depending on final design of the facility.



Operations at the single bay maintenance hangar addition could generate slightly higher amounts of solid waste materials for Building 820 as a result of increased maintenance activities. However, there would be no additional personnel employed within Building 820 as a result of the project as maintenance personnel would relocate to the new hangar addition from other hangar bays within Building 820. Therefore, there would be negligible change to solid waste generation as a result of maintenance operations under the Preferred Alternative. Solid waste would continue to be hauled to area landfills which have the capacity to absorb minor increases in solid waste amounts.

#### **4.2.9.3.2 No-Action Alternative**

Under the No-Action Alternative, there would be no changes to the existing solid waste collection system at Building 820 and Tinker AFB. No impacts to the existing solid waste collection system would result.

#### **4.2.9.4 Transportation**

##### **4.2.9.4.1 Preferred Alternative**

**Roadways and Traffic** – Demolition and construction activities as a result of the Preferred Alternative would not alter existing transportation systems on the installation. However, minor short-term impacts during the demolition and construction phase would be expected. Construction vehicles would access the site using the same access routes as personnel working at the site and minor delays would be possible, especially along Mercury Road. In addition, minor short-term increases in privately owned vehicles accessing the site would be expected as construction workers commute to the project site and minor short-term impacts to parking would occur as more vehicles access the TACAMO parking lots.

Implementation of the Preferred Alternative would require construction of an emergency vehicle access route around the west side of the hangar addition. The access route would require the removal of several small, ornamental type trees. A section of the existing security fencing along the west side of Building 820 would also require relocation. Both features would be constructed or relocated slightly to the west; however, a small section of the existing vehicle parking lot located near the southwest corner of Building 820 would be removed and an undetermined number of vehicle parking spaces would be lost. However, as no additional employees would be hired as a result of the hangar addition, only minor long-term impacts to parking would occur.

**Airfield** – Minor impacts to airfield operations would occur during the demolition and construction phase as the western end of the existing parking apron would likely be closed or limited due to potential aircraft foreign object damage (FOD). In addition, some sections of the existing aircraft parking apron directly adjacent to the proposed site would be demolished.

No additional aircraft would be based at TACAMO as a result of the proposed hangar addition. Therefore, implementation of the Preferred Alternative would not be expected to cause or contribute to long-term airfield impacts.

#### **4.2.9.4.2 No-Action Alternative**

Under the No-Action Alternative, there would be no changes to the existing transportation infrastructure at the site or in surrounding areas. No impacts to the existing transportation infrastructure would result.

#### **4.2.9.5 Electricity/Natural Gas**

##### **4.2.9.5.1 Preferred Alternative**

Demolition of existing facilities and construction of the hangar addition would not be expected to increase electricity or natural gas consumption for Tinker AFB.

Both overhead and underground electrical lines currently supply power to Building 820 so no new transmission supply lines would be necessary. Natural gas is supplied to Building 820 by an existing underground 3-inch natural gas main line located on the south side of Building 820. Both electrical power and natural gas from these lines would be extended underground to support the new hangar addition. Electrical and natural gas usage at the new hangar facility would not be expected to exceed the capacity of the existing electrical and natural gas distribution systems to Building 820. As a result, no adverse impacts to electrical power systems or natural gas distribution systems would result from implementation of the Preferred Alternative.

##### **4.2.9.5.2 No-Action Alternative**

Under the No-Action Alternative, there would be no changes to the existing electrical and natural gas infrastructure at Building 820 and Tinker AFB. No impacts to the electrical and natural gas infrastructure would result.

### **4.3 CUMULATIVE EFFECTS**

A cumulative impact is defined as "the impacts on the environment that result from the incremental impact of the action when added to other past, present, or reasonably foreseeable future actions regardless of what agency (federal or non-federal) or person undertake such other actions" (40 CFR 1508.7). Cumulative impacts can result from individually minor but collectively significant actions taking place over a period of time. The first step in assessing cumulative effects involves defining the scope of other actions and their interrelationship with the Preferred Alternative. The scope must consider other projects that coincide with the location and timetable of the proposed project and other actions. The cumulative effects analysis must also evaluate the nature of interactions among these actions.

In this EA, an effort has been made to identify all actions that are being considered and are in the planning phase at this time at Tinker AFB and in the surrounding community. To the extent that details regarding such actions exist and the actions have a potential to interact with the Preferred Alternative, these actions are included in this cumulative analysis. This approach enables decision-makers to have the most complete information available so that they can evaluate the environmental consequences of the proposed hangar addition in relation to other projects that may affect the same ROI.



#### **4.3.1 Past, Present, and Future Actions Relevant to the Proposed Action and Alternative**

This group of actions includes other actions that have a potential to partially coincide, either in time or geographic extent, with the proposed project. Information on these actions is included to determine whether they would, if implemented, incrementally affect environmental resources. Past actions are also considered. These projects are under consideration and their implementation would be subject to availability of funding, scheduling, and other factors. These actions include:

- **Building 9001, Tinker Aerospace Complex (FY11):** Tinker AFB currently leases the former General Motors Oklahoma City Assembly Plant located west of the runway on the south side of the base and north of I-240. A 50 year lease-purchase agreement was executed in September 2008 between Oklahoma County and the Air Force, covering the 2.5 million square foot facility and 407 acres. Tinker has leased about 4/5 of the facility which will host some of the current 76th Maintenance Wing operations as well as other Department of Defense missions, including work on the C-17 engines, joint strike fighter engines and core work on the new KC-45 tanker. Functions being transferred into the Complex are currently being performed at 69 separate facilities on base, many of which are World War II-era temporary buildings located in runway clear zones. Burlington Northern Santa Fe provides a rail spur into the Complex. Modifications to convert the building from an auto assembly to aircraft maintenance facility are expected to be completed sometime after 2013.
- **Child Development Center (CDC) (FY11):** Construction of a new CDC in the southwest portion of the installation, north of SE 59th Street and northwest of Gott Gate in the South Forty Area is underway. The facility would be approximately 32,877 SF. Approximately 130 feet of the Urban Greenway Multi-Use trail would be removed and re-routed in order to accommodate the construction. The new CDC would provide for the care and training of dependent children of both military and civilian personnel assigned to Tinker AFB. The building would contain areas for child activities, staff support, facility support, core administration, and maintenance. 2.1 acres of land would be required surrounding the facility.
- **Construct Consolidated Wing Headquarters Facility (FY10/11):** Construction of a Consolidated Wing Headquarters building is currently underway. The building will contain distinct legal staff including a Headquarters Command section, Resource Manager, Public Affairs, Base Plans, 72 Mission Support Group, 72 Mission Support Squadron, and a large Staff Judge Advocate facility. This project involves construction of a multi-story steel frame building on piers and concrete slab. The project would also include demolition of Building 460 and the reconfiguration of the road intersection at Arnold and F Streets. Construction of the new facility is required because the existing building is antiquated and is in violation of the Americans with Disabilities Act. The existing facility also does not meet the Air Force Legal Facilities Design Guide and has poor indoor air quality. There are also noted problems with mold, wood rot and the building has suffered from termite infestation in the past.
- **Construct Physical Fitness Center (FY11):** Construct a physical fitness center which will include a health and wellness center with a cardiovascular room, equipment and



free weight room, exercise rooms, racquetball rooms, indoor track, Olympic size pool, child play area, two full court basketball courts, locker rooms, as well as men's and women's restrooms. The facility will be approximately 90,900 SF. This project would also include demolition of Buildings 5922, 5937, 5927, 5916, 5915, 5924, 5920, 6004, and 216. This new facility would be constructed on the west side of the installation.

- **Building 3001, Phase III, Revitalization (FY11):** Expansion and opening of the south dog-leg for additional aircraft access. The project would also include providing centralized location for secondary utilities as well as upgrading electrical and utility connections.
- **Consolidated Security Forces, South 40 Development (FY10/11):** Construction of a 64,000 SF facility on the south side of Tinker AFB is currently underway. This project includes construction of a new facility to relocate and consolidate key Security Police Operations functions at a single facility. A centralized facility would reduce the response time to react to various situations.
- **Construct Medical Clinic (FY09/10/11):** Construction of a new medical clinic, of approximately 172,000 SF, in the open land area northeast of Gott Gate is currently underway. The new facility will replace the existing clinic and will result in the demolition of the Central Plant, which contains both the chillers and boilers that service the clinic. Demolition of the boilers will also result in de-commissioning of an underground diesel storage tank. This ongoing project will also include a medical squadron building as well as the War Readiness Materials warehouse. The new clinic will house doctor's offices, exam and treatment rooms, laboratories, radiology, pharmacy, dental clinic, conference and training rooms, as well as storage areas. Energy to operate the new boilers will require a combination of diesel fuel (stored in above ground storage tanks) and natural gas. The existing medical clinic will also be demolished (approximately 184,000 SF). Upon completion of the new facilities, the existing medical clinic and TRICARE facility (Building 5803) will also be demolished.
- **Engine Test Facility, Phases I and II (FY10/11):** Construction of an engine test addition onto the south side of Building 3234 which would consist of an administrative area, control room, mechanical room, and 14 meter test cell is currently underway. The facility would be approximately 23,680 SF and will be equipped with a sound suppression system which will eliminate unacceptable, disruptive noise levels in order to comply with noise and air pollution requirements as established by law. This is required to house the next generation engines. These engines are very sensitive to inlet flow distortion and smooth inlet air flow is not possible in a front loading test cell. The cell must be side-loading to accommodate the inlet airflow elements in the front.
- **Construct Air Traffic Control Tower (Possible FY11/12):** Construction of a new eleven story Air Traffic Control Tower is currently planned. Construction elements will include reinforced concrete piers, control tower cab with tinted double glazing, elevator, flight command and administrative area, supervision and simulation training area as well as fire protection, utilities, back-up power, lighting protection, access road, and any other necessary support for a complete and useable facility. The project will also include minimum DoD antiterrorism force protection requirements and demolition of existing control tower and access road.



- **Phase III, 3rd Combat Communications Complex (FY13):** The purpose of this project is to design and construct a new Squadron Operations Complex for the 32nd Combat Communications Squadron at Tinker AFB. The new facility would replace 13 substandard existing facilities. The new consolidated facility would enhance the squadron's capability to train, maintain its equipment and to deploy to any location in the world. The 3rd Combat Communications Group is a tenant on Tinker AFB that provides deployable communications, computer systems, navigational aids, and air traffic control services internationally. The new facility would support a squadron of approximately 141 personnel. The site is located east of Air Depot and north of Reserve Road. The Squadron Operations Complex is organized around a core containing the common areas: restrooms, supply room, conference room and training room for all flights. There are three flight bays located off the core area that provide each flight with air conditioned office space, electronic workbenches and drive through bay areas to store, palletize, and maintain deployable equipment. The front of the facility contains offices for the Squadron Commander and the Squadron administrative functions.
- **Demolition of Tinker AFB facilities:** Approximately 1.2 million SF of facilities would be demolished as a part of an out-years (FY 2014 through 2018) demolition plan with specific facilities to be determined at a later date.
- **Oklahoma City Southeast Sector Plan:** The recommendations made by the Southeast Sector Plan include the protection, preservation and enhancement of the sector's natural resources and the recreational amenities ; the protection and preservation of the rural character of the sector by considering all impacts of development proposals, and providing necessary improvements to infrastructure concurrent with new development; and allowing for the expansion of Tinker AFB and the expansion of specialized industrial development within a strategic area. Some actions recommended by the plan include area-wide development and design improvements; encouragement of industrial development; preservation of Environmental Conservation Areas; increasing police protection, fire protection, and emergency services; improvements to transportation, water, sewer and solid waste systems; improving parks, recreation, and open spaces; improving school facilities and systems; modification of re-zoning requirements; and improvement of neighborhood associations.
- **Oklahoma City Douglas Boulevard Water Line Replacement:** The City of Oklahoma City is currently replacing a 60-inch water line along Douglas Boulevard between 59th to 29th Streets. The construction project will be completed by spring 2012. The project will reduce Douglas Boulevard to one lane in each direction with major delays expected along Douglas Boulevard from Interstate 40 to I-240. The 60-inch transmission line is being placed within the easement east and outside of the roadway just south of Southeast 59th Street to near the property line separating the Maintenance, Repair and Overhaul Technology Center complex and Twaddle Army Reserve Center. It then jogs into the roadway and continues north to a point north of Lancer Gate, No. 20, and then jogs east back into the easement outside the roadway. Due to the placement of water line, pavement on Douglas will be demolished and replaced upon completion of the project.

- **Military Family Housing (MFH) Privatization:** Tinker Military Family Housing was privatized on July 21, 2008. Balfour Beatty Communities assumed responsibility for the daily operations of base housing through a 50 year lease. The Air Force conveyed 694 military family housing units to the developer and, depending on the alternative selected by the developer, would implement a combination of demolition, renovation, and/or construction of housing units to meet the end-state requirement of 660 MFH units. Renovation of existing military housing and construction of new units throughout the MFH areas is ongoing and must be completed within the first seven years of the 50-year lease. Under the agreement, the government leased approximately 225 acres of land to the private developer.
- **Re-Align Air Depot Gate:** Relocation of Air Depot Gate located on the west side of the base was completed in 2010. The relocation was required to correct safety issues and security requirements for the former base entry gate. The project required replacing the existing Air Depot Gate with a new Base entry gate to meet the Base's criteria, function and mission in accordance with the current "Entry Control Facilities Design Guide". The project included moving the gate location south from the existing location to provide additional space for queuing of traffic.
- **MROTC Fabric Maintenance Hangar:** The Boeing Company constructed a 239,000 SF hangar in 2010 to perform maintenance on commercial planes and contract work for government planes. The location of the hangar is east of Douglas Boulevard, across from Tinker AFB.
- **Harry Twaddle Acquisition:** The U.S. Army Reserve's 95th Division (Institutional Training) relocated to Fort Sill in April 2011. Tinker AFB plans to acquire the approximately 152,000 SF former Major General Harry Twaddle Reserve Center property located at 5316 South Douglas Boulevard.

#### **4.3.2 Analysis of Direct, Indirect, and Cumulative Effects**

This section provides an analysis of direct, indirect, and cumulative impacts identified for each resource area resulting from implementation of the Preferred Alternative and taking into account the past, present, and future actions described in Section 4.3.1 in this EA.

##### ***Noise***

Implementation of the proposed hangar addition at Tinker AFB would result in short-term, minor impacts associated with construction noise, but minimal given the existing noise environment on the installation. Once the hangar addition becomes operational, negligible adverse long-term noise effects would be expected from its daily use. However, the noise impact created by the facility and non-aircraft vehicle operations would be insignificant compared to daily airfield operations.

The construction of an engine test facility near Building 3234 would be expected to impact the aircraft operations noise setting in the vicinity of the project. However, the cumulative effects of the engine test facility would not be expected to substantially alter the baseline noise environment at Tinker AFB when combined with aircraft operations. Any noise impacts from the facility would be addressed in the next installation Air Installation Compatible Use Zone (AICUZ) report update. With respect to noise from construction activities, the proposed sites



would be sufficiently dispersed in location and timing such that their short-term, localized impacts would not create adverse cumulative noise impacts.

### ***Land Use***

Implementation of the proposed hangar addition at Tinker AFB would result in negligible to minor adverse effects in areas located west of Building 820 as some conversion of land use for additional parking apron space or building foundation work may occur depending on final designs. The project would be developed in accordance with the Tinker AFB Area Development Plan and not conflict with any existing or planned on- or off-base land uses.

The cumulative effects of the Preferred Alternative along with the other construction projects on Tinker AFB would be in accordance with the installation Area Development Plan and Oklahoma City Southeast Sector Plan, and therefore, be expected to result in the long-term benefits of implementing the land-use recommendations presented in the plans.

### ***Air Quality***

Implementation of the Preferred Alternative at Tinker AFB would result in short-term emissions during demolition and construction of the hangar addition facility and associated infrastructure, principally from site demolition, clearing, and preparation activities and the use of construction equipment and related vehicles. The air emissions would be temporary and would be eliminated after the activity is completed. Potential air quality emissions associated with operation of the proposed hangar addition include emissions from a proposed boiler/heat converter unit, emissions from the use of an onsite diesel-powered fire pump, and fugitive emissions associated with fuel-cell maintenance operations. The long-term emissions are likely to remain the same since maintenance activities would be moved to the new facility from other areas of Building 820.

Air emissions from other construction projects as shown in Section 4.3.1 are also primarily short-term in nature and associated with construction activities. The long-term emissions from the proposed construction projects would occur from an increase in boilers, generators, and other possible emission sources associated with the operation of some of these facilities. However, the long-term emissions might be offset or even decreased by the removal of less efficient sources in older structures and the sharing of infrastructure by operations transferred to the Tinker Aerospace Complex (Building 9001).

The cumulative effects from the Building 820 hangar addition and the other existing and proposed projects are expected to have little impact on air quality when compared to the total emissions for Oklahoma County.

### ***Water Resources***

Implementation of the Preferred Alternative at Tinker AFB would result in a potential for short-term increases in the sediment loading of surface water as a result of demolition and construction activities. These increases would be managed through implementation of a Storm Water Pollution Prevention Plan along with the incorporation of best management practices for sediment control during construction. There would be no impacts to the quality or quantity of

groundwater at Tinker AFB or the surrounding area. There would be no impacts to wetland or floodplains. Cumulatively, in the short term, construction and shallow excavation required during construction activities would primarily require addressing sediment control and runoff. In the long term, additional overall land flow would be possible due to increased impervious surface associated with installation development actions. It would also be probable as a result of newer storm water designs and construction techniques that an improvement in surface water control and long-term reduction in sedimentation would occur. As a result, activities associated with the Preferred Alternative would not contribute to cumulative effects to water resources.

### ***Earth Resources***

The soils in developed areas on Tinker AFB and in the vicinity of the proposed construction projects at Tinker AFB have been altered over time and the project area is permanently disturbed with a paved aircraft parking apron. Potential cumulative effects would include an increase in soil disturbance associated with the various construction activities. These cumulative impacts would be minimized by the use of BMPs to minimize soil erosion and reduce fugitive dust emissions.

### ***Hazardous Materials and Wastes***

The proposed hangar addition and concurrent actions would require the management of ACM, LBP, and movement of hazardous materials and wastes. Management of these materials and waste streams would occur under the existing Tinker AFB, HAZMINCIN and contractor management programs and would not result in adverse effects. The potential for the presence and management of pesticide impacted soils beneath existing facilities would also not result in adverse effects. Therefore, the Preferred Alternative would not contribute to cumulative effects to hazardous materials and wastes in or around Tinker AFB or in the TACAMO area.

### ***Occupational Health and Safety***

There would be short-term, minor adverse effects to safety due to the temporary increase in demolition and construction activities. Construction contractors would be required to establish and maintain safety programs that would provide protection to their workers and limit the exposure of base personnel to construction hazards. There would be positive long-term impacts to safety as increased space for maintenance activities and improvements to the overall work environment would be expected to translate into fewer occupational mishaps. Relocation of maintenance activities from existing outdoor flight line areas would be expected to reduce occupational and operational hazards, thereby creating a safer work environment for maintenance personnel.

No cumulative impacts on safety related to the operation or maintenance of aircraft would be anticipated. Implementation of the Preferred Alternative and the other construction projects at Tinker AFB would slightly increase the short-term risk associated with construction contractors performing work at these locations. However, contractors would be required to establish and maintain safety programs at their work sites for the proposed project and all other construction activities.



### ***Sustainability Objectives and Targets***

The proposed hangar addition facility would be designed and constructed to receive a minimum LEED Gold-level rating certified by the U.S. Green Building Council. The facility would also comply with Stormwater Quantity and Quality Control requirements as contained in the DoD Unified Facilities Criteria for Low Impact Development. Cumulatively, construction and operation of the new hangar facility along with other new construction on Tinker AFB would provide positive cumulative impacts as newer facilities incorporating sustainable objectives into their design, construction, and operation would replace older, substandard facilities.

### ***Infrastructure, Utilities and Energy Systems***

A short-term increase in solid waste generation resulting from demolition, renovation, and construction activities would be expected as a cumulative effect of the Preferred Alternative and concurrent construction projects, although this increase would not be expected to be regionally significant. Building revitalization projects would have a positive impact on infrastructure and utilities by upgrading existing systems. Similarly, positive cumulative impacts would occur with the demolition of older facilities throughout the base as outdated utility and energy systems would be removed from service. The Oklahoma City Douglas Boulevard Water Line Replacement project would improve utility service to Tinker AFB and nearby communities west of the base by replacing an aging water line with a modern 60-inch water line along Douglas Boulevard between 59th to 29th Streets. Various construction activities would contribute to short-term increases in water consumption associated with dust control activities and long-term increases in energy consumption; however, the overall consumption of water and energy locally would be expected to remain the same after accounting for the removal from service of outdated utility systems and the incorporation of LEED Green Building technologies into new facility designs.

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## **CHAPTER 5 LIST OF PREPARERS**

This EA has been prepared under the direction of the USAF and Tinker AFB. The individuals who contributed to the preparation of this document are listed below.

### **Consultant Team, Environmental—URS Corporation**

Matt Thompson, Project Manager  
Bill Tillar, Planning and Technical Lead  
Melinda Clary, Project QA/QC Manager  
Julia Presas, GIS/Graphics Specialist  
Adrien Branch, GIS Specialist  
Regina Geren, Technical Editor

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## **CHAPTER 6 LIST OF PERSONS AND AGENCIES CONSULTED**

### **Federal Agencies**

Federal Emergency Management Association (FEMA)

Tinker Air Force Base

Dill, David (Sr. GIS Technician)  
Flehart, Brandt (Wastewater Program Manager)  
Franell LaFollette (TACAMO Environmental Compliance Officer)  
Garrett, Cynthia (NEPA Coordinator)  
Moody, Raymond (Natural Resource Manager)  
Munkres, LouAnna (Community Planner)  
Saunders, Frances (Air Quality Program Manager)  
Taylor, Tim (Cultural Resource Manager)  
Truong, John (Storm Water Program Manager)

Naval Facilities Engineering Command (NAVFAC) Midwest

Appleton, Scott P.E. (Facility Engr/Construction Mgr, PWD Central)  
Beutler, Joseph (Environmental Scientist, PWD Central)  
Lindsey, David (Planner, PWD Central)

United States Army Corps of Engineers, Tulsa District, Planning and Environmental Division

United States Department of Agriculture, Natural Resources Conservation Service

United States Environmental Protection Agency Region VI

United States Fish and Wildlife Services

### **Oklahoma State Agencies**

Association of Central Oklahoma Governments

Audubon Society of Central Oklahoma

Oklahoma Archeological Survey

Oklahoma Corporation Commission

Oklahoma Department of Environmental Quality

Oklahoma Department of Transportation

Oklahoma Department of Wildlife Conservation

Oklahoma Geological Survey

Oklahoma Historical Society

Oklahoma State Historic Preservation Office

Oklahoma Water Resource Board

Oklahoma Wildlife Federation

**Tribal Agencies**

The Osage Nation

Caddo Nation of Oklahoma

Wichita & Affiliated Tribes

The Muscogee (Creek) Nation  
Department of Tribal Affairs

The Seminole Nation of Oklahoma  
Health Services- Environmental Protection Office

**Other Agencies and Individuals**

Tinker AFB Community Advisory Board Members

City of Del City

City of Midwest City

City of Oklahoma City Planning Department, Ward Four

Greater Oklahoma City Chamber of Commerce

Oklahoma County



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## **APPENDIX A - Interagency/Intergovernmental Coordination**





DEPARTMENT OF THE AIR FORCE  
HEADQUARTERS 72D AIR BASE WING (AFMC)  
TINKER AIR FORCE BASE OKLAHOMA

MEMORANDUM FOR: SEE DISTRIBUTION

JAN 23 2012

FROM: 72 ABW/CEANO

7535 Fifth Street, Building 400

Tinker Air Force Base, Oklahoma 73145

SUBJECT: Environmental Assessments (EAs), Repair and Renovation of the Airborne Warning and Control System at the Maintenance (AWACS) Group Complex in Building 230, Replacement of the Chemical Cleaning Line, and Construction of an Addition to Building 820, Tinker Air Force Base (TAFB)

1. TAFB has prepared three EAs in accordance with the National Environmental Policy Act and placed these documents for public review and comment. These EAs analyze the potential environmental and socioeconomic impacts associated with the three individual projects to Renovate Building 230, Replace the Chemical Cleaning Line in Building 3001, and to Construct an Addition to Building 820. We request your participation in the environmental impact analysis process, and we solicit any particular concerns or recommendations that you may have regarding any aspect of these projects.

2. Repairing and Renovating Building 230 involves the improvement and modernization of the interior space of the 552<sup>nd</sup> Air Control Wing (ACW) Maintenance Group Complex at Tinker Air Force Base. This project would remedy the current inadequacy of Building 230 to accommodate the full workload of current and future maintenance of AWACS aircraft by the 552d ACW. Included in the Proposed Action is the repair, renovation and modernization of B230, its four maintenance hangars, associated administrative and shop areas to allow the 552d ACW to inspect, service, and maintain AWACS aircraft safely and effectively. The renovated facility would also comply with the antiterrorism/force protection requirements of the U.S. Department of Defense and would incorporate sustainable energy-efficient design principles.

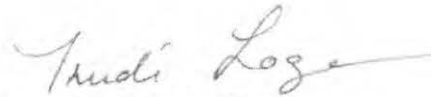
The EA prepared for the Chemical Cleaning Line evaluated the environmental effects associated with replacing the existing Cleaning Line in Building 3001. Replacement of the existing line would provide a more energy-efficient operation that would reduce water and chemical usage, generate cost savings for overall cleaning line system operations and accommodate larger engine parts.

The EA prepared for the Addition to Hangar Building 820 evaluated the environmental impacts associated with the construction of a Type II aircraft maintenance hangar addition to Building 820. Included with the Proposed Action is the construction of associated aircraft access and parking aprons. The proposed single bay hangar would be constructed as an addition to and located at the west end of B820. The hangar would be designed for fuel cell maintenance operations and would provide maintenance, crew, equipment and other support space for the US Navy Strategic Communications Wing One's E-6B Mercury aircraft squadrons.

3. No significant environmental impacts were identified for any of the EAs and the investigations resulted in Findings of No Significant Impacts for all three projects.

4. The draft EAs are available at the Tinker Information Repository in the Midwest City Public Library at 8143 East Reno Avenue, Midwest City, Oklahoma. Hours of operations are 9:00 a.m. to 9:00 p.m., Monday through Thursday; 9:00 a.m. to 6:00 p.m., Friday; 9:00 a.m. to 5:00 p.m., Saturday; and 1:00 to 6:00 p.m. on Sunday.

5. Thank you for your assistance with this matter and we look forward to your involvement with these projects. If you would prefer that we send an electronic copy to your office please e-mail or direct any questions to Ms. Cynthia Garrett, [cynthia.garrett@tinker.af.mil](mailto:cynthia.garrett@tinker.af.mil), (405) 734-2097.



TRUDI LOGAN, Chief  
Environmental Operations, Engineering Section  
Environmental Management Division



Distribution List:

Association of Central Oklahoma Governments  
Audubon Society of Central Oklahoma  
City of Del City  
City of Midwest City  
City of Oklahoma City, Planning Department  
City of Oklahoma City, Ward #?  
EPA Region VI, Compliance Assurance and Enforcement Division (6EN-XP)  
Federal Emergency Management Association (FEMA)  
Greater Oklahoma City Chamber of Commerce, Government Relations  
Oklahoma Corporation Commission  
Oklahoma County, District Two  
Oklahoma Department of Environmental Quality, Customer Services Division  
Oklahoma Department of Transportation, Planning and Research Division  
Oklahoma Department of Wildlife Conservation  
Oklahoma Geologic Survey  
Oklahoma Water Resources Board, Planning and Management Division  
Oklahoma Wildlife Federation  
Sierra Club, Oklahoma Chapter  
State Historic Preservation Office (SHPO) (Oklahoma)  
The Osage Nation  
The Muscogee (Creek) Nation  
The Seminole Nation of Oklahoma  
Tinker AFB Community Advisory Board Members  
U.S. Army Corps of Engineers, Tulsa District, Planning and Environmental Division  
U.S. Department of Agriculture, Natural Resources Conservation Service  
U.S. Fish and Wildlife Service, Division of Ecological Services

## **Appendix B – Public Involvement**







## PUBLIC NOTICE

### Tinker Air Force Base Invites Public Comment On Three Draft Environmental Assessments (EAs) for Repair and Renovation Building 230 Replacement of Chemical Cleaning Lines Construction of Hangar Addition to Building 820

Tinker Air Force Base has prepared three Environmental Assessments (EAs) which are available for public review and comment.

Pursuant to the Council on Environmental Quality (CEQ) regulations and in accordance with the National Environmental Policy Act, EAs have been performed to evaluate the potential effects on the human and natural environment associated with three Proposed Actions.

Repairing and Renovation of Building 230 involves the improvement and modernization of the interior space of the 552nd Air Control Wing (ACW) Maintenance Group Complex at Tinker Air Force Base. This project would remedy the current inadequacy of Building 230 to accommodate the full workload of current and future maintenance of E-3 Sentry Airborne Warning and Control System (AWACS) aircraft by the 552nd ACW. Included in the Proposed Action is the repair, renovation and modernization of Building 230, its four maintenance hangars, associated administrative and shop areas to allow the 552nd ACW to inspect, service, and maintain E-3 Sentry aircraft safely and effectively. The renovated facility would also comply with the antiterrorism/force protection requirements of the U.S. Department of Defense and would incorporate sustainable energy-efficient design principles.

The EA prepared for the Chemical Cleaning Line evaluated the environmental effects associated with replacing the existing Cleaning Line in Building 3001. Replacement of the existing line would provide a more energy-efficient operation that would reduce water and chemical usage, generate cost savings for overall cleaning line system operations and accommodate larger engine parts.

The EA prepared for the Addition to Hangar Building 820 evaluated the environmental impacts associated with the construction of a Type II aircraft maintenance hangar addition to Building 820 at Tinker AFB. Included with the Proposed Action is the construction of associated aircraft access and parking aprons. The proposed single bay hangar would be constructed as an addition to and located at the west end of Building 820. The hangar would be designed for fuel cell maintenance operations and would provide maintenance, crew, equipment and other support space for the US Navy Strategic Communications Wing One's E-6B Mercury aircraft squadrons.

No significant environmental impacts were identified for any of the EAs and the investigations resulted in Findings of No Significant Impacts for all three projects.

The public is invited to review any or all of the draft EAs and make comments. Written comments and questions on any EA can be submitted before close of business on January 27, 2012.

The draft EA is available to the public at the Tinker Information Repository in the Midwest City Public Library at 8143 East Reno Avenue, Midwest City, Oklahoma. Hours of operations are 9 a.m. to 9 p.m. Monday through Thursday; 9 a.m. to 6 p.m., Friday; 9 a.m. to 5 p.m. Saturday; and 1 to 6 p.m. Sunday.

The public may submit written comments, identifying the EA in question, to the address below:

72d Air Base Wing Public Affairs Office

Brion Ockenfels

7460 Arnold Ave., Suite 127

Tinker Air Force Base, OK 73145

Phone: 405-739-2027/26 • E-mail: [brion.ockenfels@tinker.af.mil](mailto:brion.ockenfels@tinker.af.mil)

## PUBLIC NOTICE

### Munitions Response Site Prioritization Protocol (MRSPP) Tinker AFB, Oklahoma City, OK

**WHY YOU ARE BEING NOTIFIED:** For decades, the Department of Defense (DOD) has used military munitions in training and testing to ensure force readiness. Munitions contamination remaining from past DOD activities may present explosive, chemical agent, human health and environmental hazards. Whenever a former range or disposal site is put to another use, actions must be taken to ensure cleanup of any remaining hazards. Therefore, Congress directed DOD to identify and prioritize all Historic, out of service Munitions Response Sites in their inventory, thus establishing the Military Munitions Response Program. The Munitions Response Site Prioritization Protocol was established to assign each former munitions site a relative priority for response activities based on the overall condition at each location. There are three modules that make up the protocol: the Explosive Hazard Evaluation, the Chemical Weapons Material Hazard Evaluation and the Health Hazard Evaluation. Each module is scored using specific criteria and the module with the highest ranking determines the priority for the site.

At Tinker AFB, five former training areas were evaluated under the MRSPP: Skeet Range #1 (MM90), Skeet Range #2 (MM93), Firing-In Buttress #2 (MM92), Ordnance Disposal Area (WP51), and 38th EIG Small Arms Range (MM94). The United States Air Force is seeking public participation, review and comment on this evaluation.

**WHERE YOU CAN FIND FURTHER INFORMATION:** A copy of the MRSPP determination for these sites at Tinker AFB is available to the public at the Midwest City Public Library, 8143 E. Reno, Midwest City, OK 73110-7589. The evaluation criteria are available for public review until February 13, 2012. Members of the public can address written comments on the MRSPP scoring to: Mr. Brion Ockenfels, 72 ABW/PA 7460 Arnold St, Ste. 127, Tinker AFB, OK 73145, phone (405) 739-2026



# STAFF SUMMARY SHEET

	TO	ACTION	SIGNATURE (Surname), GRADE AND DATE		TO	ACTION	SIGNATURE (Surname), GRADE AND DATE
1	72 ABW/ CEANO	Coord	<i>Tandi Logan</i> , 28 Feb 12	6	72 ABW/ CCE	Coord	<i>Mindy D. Baskin</i> , 1 MAR 12
2	72 ABW/ CEANP	Coord	<i>T. Baskin</i> , 2/28/12	28	72 ABW/ CV	Coord	<i>Stephen D. Wood</i> , 3 MAR 12
3	72 ABW/ CEA	Coord	<i>T. Baskin</i> , 2/28/12	9	72 ABW/ CC	Sign	<i>Blynn</i> , Col. 6 MAR 12
4	NAVFAC MW	Coord	<i>S. H. H. H.</i> , 2/28/12	26	72 ABW/ DS	COORD	<i>Sault</i> , 2 MAR 12
5	OC-ALC/ JAV	Coord	<i>Garrett</i> , 1 Mar 12	10			

SURNAME OF ACTION OFFICER AND GRADE

SYMBOL

PHONE

TYPIST'S  
INITIALS

SUSPENSE DATE

GARRETT, YD-819-02

CEANO

734-2097

cjg

1 March 2012

## SUBJECT

Environmental Assessment (EA) and Finding of No Significant Impact (FONSI), Construction of Navy Building, 820 Hangar Addition, Tinker Air Force Base

DATE

26 Feb 2012

## SUMMARY

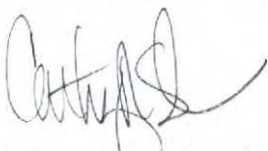
1. PURPOSE: To obtain staff coordination on the EA and FONSI for the construction of an aircraft maintenance hangar addition to Building 820 as required by 32 Code of Federal Regulations (CFR) Part 989, Environmental Impact Analysis Process.

2. DISCUSSION: The National Environmental Policy Act (NEPA) of 1969 requires federal agencies to incorporate environmental considerations in their planning and decision-making process. Agencies are required to assess the environmental consequences of major federal actions and to consider all reasonable alternatives. Tinker Air Force Base has prepared this EA to evaluate the potential environmental and socioeconomic impacts associated with the construction of a maintenance bay hangar, and associated aircraft access and parking aprons. The Proposed Action is to construct a single bay hangar as an addition to and located at the west end of the existing hangars at Building 820. The Proposed Action and No-Action alternatives were considered as part of this analysis as described in Tab 3. The EA determined that no significant human or environmental consequences would occur as a result of the construction of the addition and a FONSI is applicable. The Proponent is required to ensure that best management practices are implemented during the construction and operation phases of this project to protect air quality, water resources, and minimize the amount of hazardous materials used and disposed.

NEPA requires that public agencies interested or affected by the proposed action be allowed to participate in the development of the EA and review of the document. The public review period for the FONSI and EA started 13 January 2012. Comments were due on 27 January 2012. No formal or adverse comments were submitted by members of participating agencies or the general public.

The objective of NEPA is to ensure that the Installation Commander make a fully informed decision by considering all relevant environmental consequences and public comments prior to approving a FONSI and proceeding with the proposed action.

3. RECOMMENDATION: 72 ABW/CC approve and sign FONSI at Tab 1 and 2.



CATHY R. SCHEIRMAN, P.E.  
Acting Base Civil Engineer

3 Tabs

1. FONSI
2. Duplicate FONSI
3. EA

